



TCP/IP for Windows
A perfect desktop match.
See page 64



Drawing software
We illustrate the leading products. See page 76

OCTOBER 26, 1992

THE VOICE OF PERSONAL COMPUTING IN THE ENTERPRISE

VOLUME 14, ISSUE 43

PC price wars force Everex out of low end

BY SHAWN WILLET

Everex Systems became the first major casualty of the PC price wars last week when it bowed out of the low-price PC clone business to focus on high-end multiprocessors and servers.

Officials of the \$550 million company confirmed that due to mounting financial woes they are seeking to sell off or "outsource" significant parts of the business.

"We've decided that the low-end desktop business is not where we want to be. We want to be out of the PC price wars," said Mike Whalen, a company representative.

The company said it will post a \$35 million loss for the quarter ending in September, with revenues dropping to \$110 million from \$140 million the previous quarter. The company is also having trouble paying its bills. However, it is close to reaching an agreement with creditors to stave off a Chapter 11 filing, Whalen said.

The agreement is riding on a line of credit from Asian investors who will take over the

See **EVEREX**, page 8



IBM enters the low-end market with the PS/ValuePoint line

	486DX/66	33-MHz 486DX	25-MHz 486SX	25-MHz 386SLC
Models	1	3	3	3
RAM	8-32MB	4-32MB	4-32MB	2-16MB
Storage	212-424MB	120-424MB	80-424MB	80-424MB
Chip upgrade	No	Yes	Yes	No
Pricing*	\$3,000*	\$1,999	\$1,099	\$1,299

*Pricing is for a standard system that includes hard drive, monitor, and graphics adapters. Basic and upgraded systems are also available.

**IBM has not set a suggested price for the 486DX/66 system. Price is an industry estimate.

New round of price cuts ignited by ValuePoint line

BY ED SCANNELL

Last Monday Compaq Computer Corp. tried to pre-empt IBM's PS/ValuePoint line introduction, scheduled for the next day, by cutting prices and introducing new low-cost ProLinea systems.

IBM's ValuePoint brand team gathered that same day and, in less than an hour, reduced prices on the line to make it more competitive with Compaq's low-end systems.

"Before, it would have taken

us a few weeks to [cut prices on systems] but now we are doing it within 24 hours," said Robert Corrigan, president of IBM's Personal Computer Co.

Corrigan would not specify the size of the cut — although he indicated it was around 10 percent — but the speed with which both companies slashed prices indicated a new, stepped-up level in the price wars.

"I know they are trying to reposition against ProLinea, but they are entering late in the

See **PRICE CUTS**, page 119

entertainment company, whose comments were typical of those surveyed.

Analysts also fear that Microsoft is going after problems already solved by other local

I don't see that there is a lot to be gained from Windows for Workgroups.

Douglas Welch

area network products.

"It isn't designed for companies that have other kinds of electronic mail running already," said Amy Wohl, editor of *The TrendsLetter* newsletter,

See **WFW**, page 119

Lotus to bridge the E-mail gap

Will leapfrog Microsoft's mail plans

BY DOUG BARNEY AND CHERYL GERBER

Lotus Development Corp. chairman Jim Manzi is expected to reveal plans today to build a bridge between Lotus' and Microsoft Corp.'s competing E-mail protocols.

Lotus hopes to take the leadership role from Microsoft in overcoming one of the stumbling blocks to the free flow of E-mail among many incompatible systems. According to internal documents obtained by *InfoWorld*, the strategy is scheduled to be outlined in Manzi's speech at the start of the Electronic Mail Association's annual conference in San Francisco.

"It is a step in the right direction," said Dan Lerner, senior research analyst for Allen Bradley, an industrial automation equipment firm. "Had it existed a few years ago, our networking folks would have had an easier time hooking these systems together."

Mike Purcell, staff software

engineer for Baxter Healthcare Corp., in Deerfield, Ill., agreed. "[The bridge] sounds like a useful thing, especially to the people who have built products that allow incompatible networks and hardware to communicate," he said.

Microsoft has steadfastly refused to support Lotus' Vendor

See **LOTUS**, page 119



Manzi: Lotus building 'bridge' to leadership in E-mail.

Critics say excitement over WFW won't match lavish debut

BY JIM HAMMETT AND STUART J. JOHNSON

Microsoft Corp. launches Windows for Workgroups Tuesday with a lavish bash on Broadway, but analysts and potential customers wonder if the software will play well in Peoria.

A broad survey of Fortune

1000 companies and consultants by *InfoWorld* last week revealed that many doubt that a widespread need for WFW exists.

"We already have a huge Novell setup, and I don't see that there is a lot to be gained from WFW," said Douglas E. Welch, systems manager at a multibillion-dollar



Access to hit market at a huge discount

Introductory price will be \$99.99

BY DOUG BARNEY

Microsoft Corp. will offer its new Access database at a special introductory price of \$99.99 in hopes of jump-starting the product and cutting into the substantial market for Borland International Inc.'s Paradox.

The promotion, which amounts to an 86 percent discount on the product's \$695 price tag, will run through January 31, 1993, Microsoft sources said.

"That is darn near free as far as most businesses are con-

cerned," said Dan Lerner, senior research analyst for Allen Bradley, a Milwaukee-based industrial automation equipment firm. "A lot of people will take advantage of it," Lerner predicted.

The pricing will hurt smaller players in the database market, according to David Watkins, director and general manager of Borland's Paradox division. Watkins expects Microsoft to sell "tons" of product at that price.

Microsoft has used similar

See **ACCESS**, page 119

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two products
separately.



FIFTH GENERATION SYSTEMS, INC.

NEWS

Taligent object-oriented code headed for OS/2 next year

IBM envisions modules for printing and graphics tasks

BY CATE CORCORAN
AND ED SCANNELL

Users could get their first taste of Taligent's object-oriented code as early as next year.

That's when IBM plans to incorporate portions of Taligent's technology into IBM's OS/2 and AIX operating systems, said John Patrick, vice president of sales and marketing for IBM's personal systems programming group.

Inclusion of the new code will give developers a richer set of tools to improve OS/2's ease-of-use and communications features.

Although IBM has not decided what parts of Taligent's Object-Oriented Programming System (OOPS) technology it will put into its operating systems, the Apple/IBM joint venture will produce layers, or modules, of OOPS code that can be worked into existing operating

systems, said Bill Filip, president of IBM's advanced workstation division.

Taligent, formed by an OOPS development team started at Apple, has recently licensed IBM's Systems Object Model, which is already part of OS/2, Patrick said.

IBM thinks Taligent will provide it with modules for tasks, such as printing and graphics. IBM will then be able to use those with OS/2, Patrick said.

The licensing should make it easier for IBM to incorporate portions of the Taligent operating system into its existing operating systems, as Taligent starts to provide OOPS layers dealing with specific tasks, Patrick said.

Apple has long indicated that OOPS technology would be an increasingly important part of its own Macintosh operating system. The company believes some of Taligent's Pink technology — developed by Apple —

could be included in Apple's modern system software.

"We're not going to stop developing and improving System 7 just because Taligent is there," said Roger Heinen, Apple's vice president of software development. "The operating systems will address different user needs, and where OOPS technology is appropriate, we'll incorporate it into the Mac."

Although IBM's first use of the Taligent code might be in its microcomputer operating systems, it could have broader implications, said Richard Guarino, the IBM vice president who oversees the Apple/IBM alliance.

With a team of Pink evangelists spread throughout IBM, the company is exploring ways of using the OOPS technology being developed by IBM on all of its systems, Guarino said.

— Tom Quinlan contributed to this article.

AT DEADLINE

Zenith, DFI, Austin first to bundle WFW on PCs

Zenith Data Systems and clone maker DFI Inc. will be the first PC manufacturers to pre-install Microsoft Corp.'s Windows for Workgroups on their systems, according to company officials. Zenith said it will be installed as a standard feature on all 25-MHz through 66-MHz 386 and 486DX2/66 Z-Station desktop computers, as well as on 20-MHz and 25-MHz 386SL Z-Notes portables. DFI will include the operating system as an option on its Premium Series PCs and will offer a special workgroup price for multiple orders. WFW will also be available as an upgrade on existing Premium systems for \$199. Austin Computer Systems plans to pre-install Windows for Workgroups on all its 386 and 486 systems.

— The InfoWorld Staff

Microsoft rolls out Windows NT beta

This week the first of about 20,000 copies of the Windows NT beta will ship as scheduled, according to a Microsoft official. Several thousand copies will ship each week in what Microsoft calls a "rolling beta" program. Early comments and bug fixes will be incorporated into later beta versions, said Dwayne Walker, director of marketing for NT and networking products. Although NT initially will not support diskless workstations, that capability will be added later.

— Stuart J. Johnston

PenPoint gets communications

Today, AT&T and Go Corp. will provide more information about their personal communications agreements, as the two companies formally detail communications links for PenPoint-based devices. Go will supply messaging and fax components — including Go Mail, an address book, dialing instructions, an inbox, and an outbox — to PenPoint in the fourth quarter. Go will also bundle AT&T's EasyLink access software with PenPoint. Links to Novell's MHS and several wireless messaging systems will appear in 1993.

— Yvonne Lee

Apple beats IBM on unit shipments

Apple Computer Inc. has surpassed IBM in unit shipments for the first three quarters of this year. According to figures released by International Data Corp. last week, Apple shipped 2.04 million systems compared with IBM's 1.85 million. Although IBM is expected to make a strong resurgence in the fourth quarter, based early on its ValuePoint series, it is unlikely it will catch Apple by year end, said Kimball Brown, senior hardware analyst at IDC.

— Ed Scannell

cc:Mail for Windows, OS/2 readied

Lotus cc:Mail 2.0 for Windows and the new OS/2 release will ship by the first quarter of 1993, said Andy Watts, cc:Mail product manager. Version 2.0 has added rules and script capabilities, a spelling checker, and improved searching of messages across folders and in-boxes and by subject. Version 2.0 already supports DOS, Macintosh, and Unix.

— Cheryl Gerber

IBM Japan shows 2.6-pound tablet

IBM Japan Ltd. introduced a 2.6-pound tablet computer to the Japanese market last week. Although the ThinkPad PS/55 T22xs will initially be sold only in Japan, it will be released in the United States "when market conditions become more favorable," said an IBM Japan official. The tablet has an Intel 386SX processor running at 16 MHz, 2 or 4 megabytes of RAM — expandable to 6 or 8 megabytes — and a resistive-film touch-panel. The 7.6-inch black-and-white monochrome LCD panel allows users to write, draw, and point on the screen with their fingers or a supplied plastic-tipped pen.

— David Keller, IDG News Service

Interop showcases messaging standards

BY CHERYL GERBER

The first in a string of standards-based enterprise messaging products will be introduced this week at Interop in San Francisco.

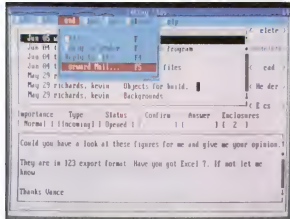
The products are the results of partnerships Enterprise Solutions Ltd. has forged with NCR Corp., Digital Equipment Corp., and Data General Corp.

The products should provide TCP/IP and Open Systems Interconnection (OSI) users with a common method of messaging based on X.400 E-mail standards.

Specifically, the companies have developed licensed Message Transfer Agents (MTAs), which integrate X.400 with X.500 directory services on TCP/IP and OSI networks. The MTAs will handle the receipt and routing of messages across networks particular to the mail systems.

Enterprise Solutions is bringing a common user agent to the different MTAs, said Karl Kleissig, Enterprise Solutions president and an executive director of X/Open.

The third product, called Interop's StarPro Enterprise Messaging product, which includes user agents for Windows, DOS, Motif, and Unix terminals



Enterprise Solutions' user agent for Windows, DOS, and Unix will bring users standards-based E-mail from NCR, DEC, and DG.

and will be delivered as a set of three products.

Its first product — Message-Central400 — provides the messaging backbone, mailboxes, and Internet gateway. The second, OSI/TCP Connect, enables Message-Central400 and other OSI applications such as FTAM to exchange messages over a TCP/IP network.

The third product, called OpenConnect400, is a gateway to the predominant LAN E-mail systems, such as Microsoft Mail, Lotus cc:Mail, and MHS-based

E-mail systems.

Enterprise Solutions is selling the client component of the system and NCR is providing the server side.

With DEC, Enterprise Solutions has supplied its user agent and the X/Open-based application programming interface for use with DEC's MAILBUS 400.

Enterprise Solutions is supplying the messaging front end for Data General's Avilion line, based on DG's version of Unix, on which the company based its MTA, called the AV/X.400.



Distributed Thinking / Stewart Alsop

Voila! The miraculous intercontinental modem link from France

I checked into the NOGA Hilton, in Cannes, France, this week and boy was I surprised. I am here to speak to 500 of Microsoft Corp.'s largest European customers and had planned on being disconnected from electronic mail for the whole time. I've been to France several times before and have never figured out how to get my modem plugged into the telephone system. The French in-the-wall phone plug is not the same shape as the U.S. RJ-11 plug.

But it turns out that this hotel, a new one, has installed telephones with RJ-11 phone jacks. So I just unplugged the phone and plugged in my modem. Then, another surprise: The French phones do not distinguish between French and American phone tones! I dialed into AT&T USA Direct manually with one phone (the room has two telephones, fortunately) and then set my computer to dialing the phone and credit card numbers. And it worked—I connected directly to my computer at work from 6,000 miles away. That's a feeling of accomplishment!

And, yes, Cannes is on the French Riviera. But I'm here in mid-October and it has been cold, windy, and raining.

IS THERE A FUTURE IN IT?

Emboldened by what Max Hopper, chief information officer of American Airlines, says about CIOs working themselves out of jobs (see last week's Distributed Thinking)—or perhaps by jet lag from the 14 hours it takes to get from San Francisco to Cannes—I decided to try out a new idea on Microsoft's European customers. (I find it safer to try out really outrageous ideas outside the country.) So I proposed that there was no future for the CIO in truly distributed information systems. Given that about one-third of the audience consisted of CIOs, it's safe to say the idea kind of fell flat. But I'm stuck on this notion that perhaps users will "do their own IS." Back in the 1950s and 1960s when the telephone industry was still becoming ubiquitous, there was a notion that we need more and more telephone operators to handle the traffic of a universal telephone system. Instead, the telephone company introduced Touch-Tone dial-

ing in the 1970s and everyone became his or her own operator (to the degree that I can manage the 32 digits needed to dial into my modem from France).

With a truly distributed information system, with local control over local data and well-defined standards for interoperability, isn't it logical that eventually corporations won't need to have a single person in charge of their information systems?

I GOT THE MESSAGE

While admitting last week that I didn't know what I was talking about when it came to the Internet, I really showed it by saying that the easiest way to use Internet was from a Unix workstation. A variety of readers have told me the following: There are versions of FTP and Telnet for DOS. There is a program for Windows called Chameleon, which provides most Internet functions in one package (and is advertised in InfoWorld's InfoMarket section, as one reader sardonically pointed out).

Several readers insisted that the best Internet software is on the Macintosh. Mentioned for the Mac: Eudora for electronic mail, Nuntius for transferring Usenet, Fetch or Xferit for transferring

files, and NCSA Telnet, WAISStation, or TurboGopher for a terminal program. Many of these programs are apparently free or shareware.

Irony No. 1: You need to get connected to the Internet before you can use the software, but I won't delve into that.

Irony No. 2: Despite the bold souls who told me otherwise, I would still venture that the majority of Internet users (defined as people who know that FTP stands for "file transfer protocol") are indeed Unix workstation users.

GENIUS IN THE PACKAGING

Even if you're not a Macintosh user, check out the new Duo systems Apple introduced last week. The company has managed to think through the whole process of using a lightweight notebook computer with a docking station and designed a remarkably integrated set. The computer takes care of the whole process of disconnecting and reconnecting the notebook to the dock in software, so you don't have to think about it. Just grab it and run!

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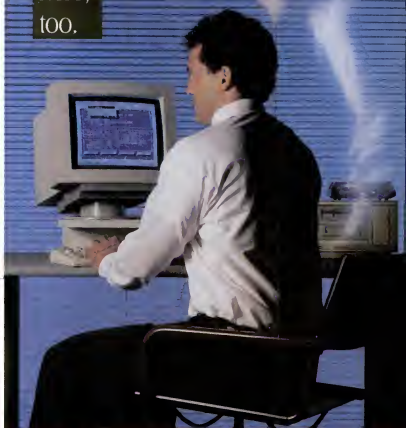
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ClarixWorks for Windows integrated software due at Comdex

Clarix Corp. will announce ClarixWorks for Windows at Comdex and plans to ship the product early next year, sources said.

The integrated software package will include word processing, graphics, spreadsheet, charting, and database tools.

Geared toward entry-level and laptop users, ClarixWorks differs from some integrated packages because it lets users work with the different tools without

switching from module to module.

"You have a sheet of paper and your tools [for word processing, spreadsheets, graphics, databases, and charting] on the left," a source said. "You are typing away in the word processor, and then you choose the spreadsheet tool and the menu bar changes to a spreadsheet."

ClarisWorks will use Windows' terminal accessory for sending and receiving

documents. The product offers eight graphics translators and imports data from Excel, Lotus 1-2-3, dBase, and a variety of word processors.

Santa Clara, Calif.-based Clarix, which is creating a publishing division called Clear Choice to publish other developers' Macintosh- and Windows-based software, declined to comment.

—Jeanette Borzo

Apple pushes server focus with rebate

BY TOM QUILLMAN

Apple Computer Inc. is offering a special promotion for Quadra 700s running under A/UX as a prelude to a planned drive to become a major server company in 1993.

Networking VARs who buy three of the specially configured Quadras between November 1 and January 31 will receive a \$6,000 rebate, said Bruce Cleveland, business director for Apple's open systems business unit.

The reasons for the promotion are to establish a reseller base that can sell servers and Apple's A/UX flavor of Unix and to encourage VARs to port their character-based Unix applications to A/UX, Cleveland said.

"We think A/UX is a perfect Unix server operating system," Cleveland said. "You not only have an easy-to-use interface, but we also have features like automatic reboot that other Unix-based systems don't provide."

"A/UX is System 5-compatible with Berkeley extensions, so it's a very easy port," Cleveland added.

Although Apple has seemed reluctant to go after the server market in the past, that's going to change in 1993, Cleveland said, although he declined to specify products.

However, sources familiar with the company's networking plans have indicated that Apple intends to introduce a 40-MHz 68040-based dedicated server early next year. (See "Dedicated server to debut in early 1993," September 7, page 1.)

Cleveland did acknowledge that Apple would use 1993 to finally deliver a strong product family for client/server computing.

"We are going to move strongly into that area next year with a number of products and programs," he said.

Corrections

The story "Wacom tablet takes on IBM," October 19, page 32, contains a number of factual errors. Richard Breen is not, as stated in the story, Wacom Technology Corp.'s president. Breen is consultant on technology strategies to Wacom. The PL-100V LCD digitizer tablet will be available in Japan and the United States. The tablet combined with a 386 PC, known as the PenTop, is being sold in Japan only. A Wacom representative said he is not aware of any plans for Sanyo to sell the PL-100V or PenTop. Wacom can be reached at (206) 750-8882. InfoWorld apologizes for these errors.

In the product comparison of 33-MHz 486 computers (October 19, page 66), the CompuAdd 433, Dell 433DE, and Everex Tempo M Series 486/33 should have received Buyers Assurance Seals.

Futurus Team, reviewed in the same issue (page 80), should also have been awarded the Buyers Assurance Seal.

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Comparison of native Compaq Deskpro 386/20c and same system with 486/Now! 486DX-33MHz Landmark Speed Test 2.02. Comparison of native IBM PS/2 Model 50 and same system with SX/Now! 386SX-33MHz Landmark Speed Test 2.03. All trademarks are of their respective owners.



THE INSIDE NAME IN UPGRADES

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HP pumps up LaserJet 4 with features, keeps price low

BY TORSTEN BUSSE

Hewlett-Packard Co.'s new LaserJet printer will ensure the company's dominance in the corporate business world, analysts predict.

The LaserJet 4, which ships today, offers superior print quality, a rich font set, faster processing, automatic print language, and interface switching. (See related story, page 33.)

The printer lists for \$2,199 and will be sold at a street price of about \$1,400, analysts said. "It's hard to criticize it when they give you so many features at this price," said Marc Boer, analyst at IDC, in Framingham, Mass.

Analysts applauded HP's decision to offer an out-of-the-box Macintosh version. Some users, however, would like to see PCL and PostScript always supported so the printer would fit better

into mixed Mac and PC environments.

"That's why the Compaq printers are so appealing," said Randy Dugger, manager of workstation LAN support at Tandem Computer Inc., in Cupertino, Calif., who manages about 2,000 LaserJets.

Dugger welcomed HP's implementation of bidirectional communications capabilities, which enable the printer to send detailed error messages to the user's PC. However, vendors still have to build extensions into their operating systems.

Microsoft has committed to provide that support in Windows by the first quarter of 1993, said Greg Thompson, Windows brand manager at HP.

Still missing are improvements to Windows printing, which is enhanced only through embedded TrueType fonts, analysts said.

Workstation flood coming

HP, Sun, DEC ready workstation lines for November 10

BY GARY CONCORAN
AND JAYNE WILSON

The workstation market is heating up as Hewlett-Packard Co., Sun Microsystems Computer Corp., and Digital Equipment Corp. prepare to announce new lines next month, according to HP, DEC, and industry sources.

HP is expected to make the biggest announcement, promising to hit all price points from the low to high end with workstations based on faster versions of the superscalar 7100 chip, a company official said. He declined to provide further details on the workstations. DEC and HP declined to provide details: Sun refused comment.

The pressure is on both HP and Sun to improve their low-end systems. DEC, however,

will concentrate on the mid-range and high end, with low-end systems to follow in the spring or summer, sources said.

Curiously, all three companies are expected to make their announcements on the same day, November 10.

Sun will unveil low-end systems based on the new Tinsami chip from Texas Instruments, sources said. The systems will use 50-MHz chips with 1992 integer SPECmark performance in the mid-20s.

The entry-level color model is expected to start at about \$5,000, with performance equal to the Sparc 2, sources said. The systems will run Solaris 2.1.

DEC's announcement will include two workstations and three mainframes starting at \$15,000, sources said. These are

the first systems based on its 150-MHz 64-bit Alpha chip. Three low-end Alpha PC systems are expected to follow next year, said analyst Terry Shannon of Gander Resources of Ashland, Mass.

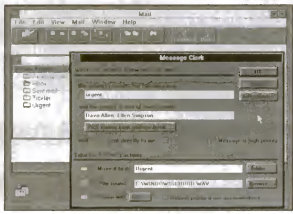
The Triumph is a desktop PC based on a forthcoming, low-cost version of the new Tinsami chip called the LC-Alpha, sources said. It rates 40 to 60 SPECmarks and is expected to cost about \$4,000. The Jensen, a PC based on EV4, is thought to rate about 120 SPECmarks and cost about \$12,000.

"The Jensen will probably be announced when Windows NT comes out," Shannon said.

The Pelican, also based on the LC-Alpha, rates about 75 SPECmarks, said Shannon, and is expected to be about \$12,000.

Product Spotlight

WinRules sorts mail on WFW



Beyond Inc.'s WinRules will be unveiled at Microsoft's Windows for Workgroups rollout in New York next week. WinRules is a set of rules-based tools for mailbox management and applications. Features include automated mail messaging. (617) 621-0095.

IBM sustaining OS/2 sales growth

Price-Waterhouse signs deal for up to 15,000 users

BY ED SCANNELL

Despite the shortage of applications for OS/2 2.0, IBM appears to be sustaining growth for the operating system with increased shipments and a volume purchase deal with Price-Waterhouse Inc.

IBM has shipped slightly more than 1.5 million copies of OS/2 2.0 in the first seven months of availability — more than the OS/2 1.x series has sold in more than three years. The shipments were announced at IBM's developers' conference in New York last week.

Meanwhile, the accounting firm Price-Waterhouse has signed a volume purchasing deal for as many as 15,000 users, sources close to the negotiations

said last week.

Price-Waterhouse's decision to move to OS/2 is driven in part by the firm's use of Lotus Notes, which works with OS/2 servers and Windows-based clients.

The decision was also inspired, however, by the improvements IBM made to OS/2 2.0 with its recent bug fix. Consequently, Price-Waterhouse intends to eventually replace thousands of copies of Windows on the desktop with OS/2.2.0.

Although OS/2 2.0 sales remain strong, software vendors have not provided a rich variety of 32-bit compatible applications. As of last week, 250 applications were available. This has caused some observers to question whether a significant per-

centage of the 1.5 million copies are evaluation copies or are being used for development of internal applications.

Other observers believe users are delaying purchases until IBM delivers its first major upgrade to the operating system later this month.

If OS/2 2.0 is to succeed, it will need at least the 1,200 32-bit applications IBM officials claim they are tracking.

"For IBM to put every doubt to rest regarding OS/2's longevity, they'll need a broad suite of third-party apps," said Bill Bluestein of Forrester Research Inc., in Cambridge, Mass.

"They can't rely on corporate developers for the product's long-term success," Bluestein said.

EVEREX / from page 1

PC price wars force Everex out of low end

manufacturing of Everex's low-end PC products, said Rick Martin, financial analyst at The Chicago Corp.

Everex will also receive money by selling several subsidiaries, although the company said no deal has been struck.

Everex's notebook computers and the Tempo line of PC clones are prime candidates to be offloaded, Whalen said. The PCs would be manufactured in the Far East under the Everex name and then resold in the United States, he said.

Everex is looking for similar ventures or the outright sale of other divisions, such as its point-of-sale PCs, high-definition television systems, and tape-backup systems.

Everex will focus on high-margin

products, including its fault-tolerant Step servers and multiprocessing desktop machines and servers, Whalen said.

Once the goals are set, Everex will be approximately half its current size. "If the revenue is going to be cut in half and Everex is going to be profitable, you can imagine what that will mean for the company's head count," analyst Martin said. Everex currently has about 1,900 employees worldwide, including 1,200 in its Fremont, Calif., headquarters.

Everex wouldn't disclose restructuring plans, other than to say the work force would be reduced significantly.

Despite its downsizing, company officials plan to introduce notebook PCs and other products at Comdex next month.

Microsoft proposes fast port protocol

Microsoft Corp. is garnering industry support for a faster parallel port protocol to help boost the printing performance of Windows.

Last week the company presented specifications for the protocol to the Institute of Electrical and Electronics Engineers (IEEE) 1284 committee, said Jeff Johnson, product manager for the Windows printing group.

The Extended Capabilities Port (ECP) protocol is designed to speed data transfer and enable the parallel port to be used for purposes other than printing, such as scanners and network interface cards.

"About time people get data into their machines as fast as the machine can process it," Johnson said.

Chips & Technologies Inc. of San Jose, Calif., has committed to supporting the protocol in its next generation of I/O hardware, tailored to boost the PC-to-laser printer performance a minimum of twofold.

"The Centronics parallel port has a data transfer rate of 15K per second," said Ahmet Aldemir, a C&T representative.

"Keeping the same connector, you can send 2 megabytes per second with [the ECP] protocol," Aldemir said.

Using ECP, printers can receive data as fast as it can be processed, reducing printer memory requirements and printer prices, Aldemir said.

— Torsten Busse

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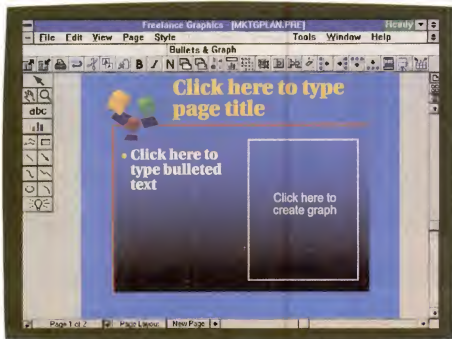
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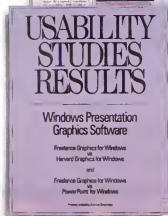
Graphics has managed to win every major award in its category, including *InfoWorld's* comparative review (score: 8.1), *PC Magazine* Editor's Choice, *PC Week's* Graphics Shootout, and *Computer Reseller News'* Editor's Choice.

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Lotus

Freelance Graphics for Windows

dBase for Windows is released; first rewrite in 10 years

BY SCOTT MACE

Borland quietly marked the first anniversary of its acquisition of Ashton-Tate this month by releasing alpha copies of dBase for Windows to selected developers.

Much is riding on this product, observers say. It is the first true rewrite of dBase in nearly 10 years, the first version to access a variety of non-dBase data, and

the first to offer Borland-caliber programming tools. It's also the first to seriously challenge Microsoft's current database jewel, FoxPro for Windows, which entered beta testing this summer.

Despite Borland's official position that the Windows dBase product will ship only when it is ready, Borland must act quickly to protect its estimated 70 percent market share of PC database manage-

ment systems (DBMSes).

"Borland is late on the Windows front," said Donald A. DePalma, senior analyst at Forrester Research, in Cambridge, Mass. "They've lost some momentum to other tools, which have garnered significant mindshare already. The drums are beating louder."

The first dBase for Windows is aimed at a subset of the traditional dBase

market. By targeting developers, Borland hopes to capture the traditional corporate users who can make a PC DBMS a corporate standard. Developers close to Borland say the company still has time to capture their hearts before other Windows databases can crowd dBase out.

dBase for Windows includes the same integrated development environment, editor, and debugger that Borland C++ for Windows offers, sources said. The initial release will generate executable Windows applications. An update to follow immediately will allow dBase developers for the first time ever to generate executable DOS applications.

The release of the Windows alpha is boosting developer morale, as have the recently released beta copies of dBase IV 2.0 for DOS. The DOS version adds some of the same query optimization found in Paradox 4.0, which Borland has referred to as Wildly Accelerated Relational Processing (WARP). Sources said WARP uses the same basic bit-mapped indexing technology that gives Fox's Rushmore query optimizer much of its speed.

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Back-UPS 900	Multiple systems, longer runtime applications	\$249	\$599
Back-UPS 1250	Multiple systems, LAN hubs, small minis, telecom equipment	\$249	\$799

Intel processor boosts notebook speed, battery life

BY YVONNE LEE

A microprocessor Intel Corp. will announce November 9 will help produce notebooks that not only perform better but have longer battery life as well, according to sources familiar with the chip.

The 486SL will run for 4 hours when all power management is disabled, compared with 3 hours for the 386 model. With power management on, the new chip runs 4 hours longer than the 386SL's 8 hours, the sources said.

The 486SL achieves the high battery life because it runs at 3.3 volts. Peripherals, particularly disk drives and LCDs, still run at 5 volts. Running at 3.3 volts allows the processor not only to consume less power, but also to run more coolly.

The processor also runs 1.9 times as many instructions per second as the 386SL and has a clock speed 2.8 times that of the 386SL when running at 32 bits, the sources said.

The stripped-down version of the 486X includes a floating-point unit to process math calculations for processes such as screen redraws and spreadsheets, sources said.

The CPU will use the same 82360SL system logic companion chip the 386SL uses, sources said. The processor contains instructions for input and output.

System manufacturers say they expect the processor's price to fluctuate before it becomes available in large quantities, but the processor will not be cheap — approaching \$400, compared with around \$270 for the 386SL.

Larger companies will probably begin mass-producing notebooks and other computers using the chip during the first quarter. Similar products will begin to appear from smaller manufacturers around midyear, the sources said.

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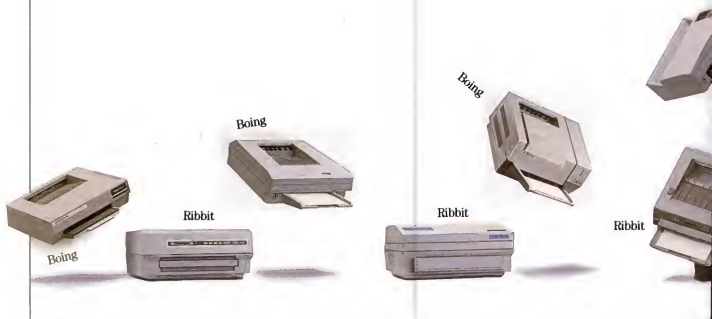


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Other laser printers play leapfrog trying to catch up with the HP LaserJet.

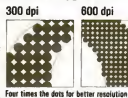


The new HP LaserJet 4 printer isn't a hopped-up version of the past generation. Its new, advanced design sets much higher standards for print quality, speed, built-in features and value than ever before.

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To optimize the LaserJet 4 for Windows printing, we codeveloped some breakthroughs with Microsoft.* Including Windows 3.1 TrueType fonts and rasterizer built in to make sure your users get fast, WYSIWYG printing. The fast

Windows driver with HP-GL/2 vector graphics also enhances printing speed.



Several popular software drivers are included: Windows, WordPerfect and Lotus. As well as the new HP Explorer PC utility software,

which provides a printing tutorial to guide your users through set-up and operation of the printer's new features.

All this makes the HP LaserJet 4 printer supremely simple to plug-and-play. As you'd expect, it also offers complete document and software compatibility with the HP LaserJet III printer.

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*Suggested U.S. list price. †In Canada call 1-800-387-5867. Ext. 7133. **To hear a LaserJet 4 printer data sheet sent immediately to you via fax machine, call 1-800-964-1402 from your touch-tone phone. Microsoft is a U.S. registered trademark of Microsoft Corp. Windows 3.1 is a product of Microsoft Corp. Adobe and PostScript are trademarks of Adobe Systems Incorporated which may be registered in certain jurisdictions. Lotus is a U.S. registered trademark of Lotus Development Corporation.

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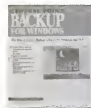
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NEWS / SOFTWARE

PIPELINE

ANNOUNCED

SoundBits links sound to Windows events

Microsoft Corp. announced the SoundBits sound clip collections, which lets users attach digitized sounds to Windows events. It is available in three collections, each priced at \$39.95. It requires Windows 3.1, 1 megabyte of RAM, and 2 megabytes of hard disk space, with a compatible audio output device and an audio driver for Windows. It is expected to ship late this month.

SHIPPED

dBMan offers support across platforms

dBMan for the Mark Williams' Unix-clone Chorus 4.0 lets users take database applications and data developed on one platform and run them on another in color and without modification. It is priced at \$99.95 and is also available for DOS at \$350; SCO Xenix, Unix 386 at \$399; Sun Sparc at \$695; and IBM AIX, RS/6000 at \$895. (408) 723-9044.

Central Point Software Inc.'s PC Tools 8.0 adds an integrated, graphical desktop environment and antivirus protection. It also includes support for SCSI tape drives, NetWare Lite, and server-based tape drives. It is \$179; pricing for users of previous versions is \$69.95. (800) 445-4208.

Individual Software Inc.'s AnyTime lets users schedule work and travel and offers callendars that can be printed to communicate activities and meeting times. It offers drop-down menus, and users can access AnyTime while running other software programs. It retails for \$59.95. (800) 822-3522.

PRICE CUTS

WordTech cuts price for Arago dBLX

WordTech Systems has reduced the price for its database application, Arago dBLX, which includes Business Graphics, the R & R Relational Reporter Writer, Panel Painter, and SmartCode Application Generator. New prices are \$399 for a single-user version, \$999 for its multuser version, and \$499 for its Quicksilver distribution compiler, a savings of \$300 on each product. (510) 254-0900.

Continued on page 24

Users awed by Approach 2.0

Windows DBMS update comes quick, adds flexibility

By Scott Mace

In an industry where the time between major updates of database management systems (DBMSs) is measured in years, users of Approach for Windows are astonished at the improvements made in Version 2.0, which shipped earlier this month.

"It shows an incredible amount of responsiveness I haven't seen in software companies for years," said Mike Nelson, a systems integration engineer based in Falls Church, Va.

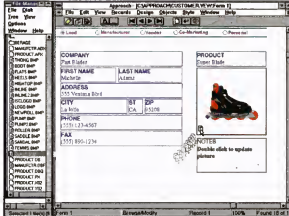
"[Approach 2.0] allows our clients to put out reports they always wanted, but were never able to do with dBase, Paradox, or Oracle, because it was so damn procedural," Nelson said.

Approach 2.0 lets users widen columns, alter report headers, and adjust page breaks without requiring the minimum \$100 consulting fees of the past, Nelson said.

Approach 2.0 adds support for reading and writing SQL Server, FoxPro, and DB2 data files.

Users can also do rapid application prototyping in Approach, which can either become the final application or can be the inspiration for more procedurally oriented dBase, SQL, or C applications, Nelson said.

Performance is "incredibly



Approach 2.0 includes PicturePlus fields so that users can store graphics, sounds, charts, or an entire document.

faster," Nelson said. "In the older version, there was a severe delay for opening a database. It's now virtually instantaneous on the same machine."

Approach 2.0's PicturePlus fields, which let users store any graphic, sound, chart, or even entire documents, are bringing new users to the DBMS.

A gardening center will soon be using an Approach application to verify that scanned plants are correctly identified by displaying a photo of the plant at checkout time, according to Nelson.

"Paradox made a big hit with their BLOBs [binary large objects], but this is the same thing

running under Windows," said Gerald Perkins, quality assurance engineer at Loral Space & Range Systems, in Sunnyvale, Calif.

Novice users can set up a flat-file database in Approach 2.0 in 20 minutes, and within two hours they can set up a relational database, according to Perkins.

Approach 2.0 is priced at \$399. Registered Approach 1.0 users can upgrade for \$49. Until January 1, users of dBase, Paradox, Q&A, and other databases can upgrade to Approach for Windows for \$199.

Approach Software, located in Redwood City, Calif., can be reached at (415) 306-7890.

Third parties using MAPI in WFW products

By Jim Marmett
And Stuart J. Johnston

Although some of the third-party software to be shown at Microsoft Corp.'s formal introduction this week of Windows for Workgroups (WFW) will be little changed from the companies' existing products, others—such as JetForm Corp.'s JetForm for E-Mail/G—have been custom developed to enable their software to work with Microsoft's Messaging Applications Programming Interface (MAPI).

By conforming to MAPI, applications will be able to send information transparently within the Windows workgroup.

Aside from JetForm, upgrades for XTree for Windows and Norton Desktop will support the MAPI interface. (See "Vendors plan products in time for WFW," October 19, page 3.)

Shiva Corp. will show a version of its Net Modem E that works with WFW using MAPI.

Also, Connect Software's E-Mail Connection has specific features designed to work with WFW. (See "E-Mail Connection lists standards talk," October 19, page 2.)

More than 20 software developers are expected to show workgroup-enabled products or workgroup-compatible products at the WFW presentation in New York. Some 15 to 20 hardware companies, including printer, tape backup system, and PC manufacturers, will also be present, said Russell Siegelman, product manager of WFW.

Keyfile Corp. will show Keyfile 2.0, which will run inherently on the WFW program, the company said.

With Keyfile, users can build desktop custom tools to automate daily tasks, convert between popular word processing and spreadsheet formats with converter tools, or use a graphical user interface builder such as Visual Basic or ObjectVision to design custom front ends to Keyfile. The program is expected to be released at the end of this month for \$2,995 for a five-user group.

Spry Inc. said it will offer AIR for Workgroups, a Windows implementation of TCP/IP for WFW. It is available for \$149.

Additionally, Maynard Electronics will show tape backup software that uses WFW's Network Dynamic Data Exchange (NetDDE) to send notification of various operations.

Autodesk turns Animator into a real Pro

Version 1.3 includes CD ROM with thousands of files

By Kelly Damore

Autodesk Inc.'s multimedia division unveiled last week an upgrade version of its two-dimensional paint and animation package.

Animator Pro, Version 1.3 will offer PC users a variety of scene enhancements, including a CD ROM containing 400 texture images and 1,000 background tiles. The CD ROM also contains 19 Impressionist artist templates, and 364 animated two-dimensional and three-dimensional clips. Users will also receive 100 PostScript fonts on the CD ROM. Animator Pro will continue to include bit-mapped fonts.

"Having access to bit-mapped fonts is an incredible

"Having access to bit-mapped fonts is an incredible asset."

Steve Baum

asset. A lot of companies have type specs, and when they move over from print to electronic media, they want to maintain the same typefaces. With 100 PostScript fonts, it is easy to do that," said Steve Baum, president of Media Interactive, a New York-based graphics com-

pany.

The program also has the capability to run as a DOS application under Windows and includes a DOS shell that allows a user to toggle between DOS and Animator Pro.

Animator Pro, Version 1.3 also features a text bullet-charting facility that provides the capability to create animated text charts.

The \$795 package will be available through dealers by the end of this month. For users who have Animator Pro, the upgrade will be priced at \$199. For Animator and Multimedia Explorer users, the upgrade costs \$300.

Autodesk Inc., located in San Jose, Calif., can be reached at (800) 525-2763.

Top packages' pricing gets aggressive

BY JEANETTE BONZO

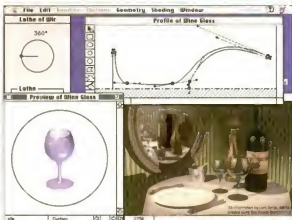
Two software vendors, looking to capture users outside their niches, are selling their flagship software products at greatly reduced prices.

Frame Technology Corp. of San Jose, Calif., is offering a competitive upgrade price through year end for users of Windows and Macintosh-based word processing or desktop publishing programs. Such users can buy Frame's long-document publishing product, FrameMaker, for either Windows or the Mac for \$395 — half the usual \$795 price.

Ray Dream Inc. of Mountain View, Calif., has slashed the price of its three-dimensional package, Ray Dream Designer, from \$895 to \$299 and also has reduced DreamNet rendering engines from \$199 to \$50 each.

Frame hopes to coax users of less-featured word processors or desktop publishing packages into buying its high-end product, while Ray Dream hopes to get users of two-dimensional illustration packages to try 3-D.

"We are people out there using word processors for tasks that they're not suitable for," said Siva Kumar, vice president and general manager of Frame's



Ray Dream has cut prices on its three-dimensional package, Ray Dream Designer, and on its rendering engines.

desktop products division. "It's more of a migration upgrade. This is not a competitive move against word processors at all."

Ray Dream said it hopes to move 3-D graphics out of the high-end category by pricing Designer below many 2-D illustration packages, making the product accessible to users daunted by an \$895 price tag.

"It does take away the intimidation factor," said Jeff Henning, senior industry analyst at BIS Strategic Decisions, in Norwell, Mass.

"Graphic departments have been automated for a long time," Henning continued. "They are people out there using word processors for tasks that they're not suitable for," said Siva Kumar, vice president and general manager of Frame's

This is very dramatic."

"This emphasizes the price competitiveness of the market," said Bill Kesselring, industry analyst with Dataquest, in San Jose, Calif. "At the low end, you can bring people around to having high-end needs," Kesselring said. "You open up the market for migration."

"In some categories, if you drop the price enough, the demand floods in," said Bill Coggeshall, president of New Media Research, in Los Altos, Calif. "But [3-D drawing] is not one of them."

"I think you see two companies that are enmeshed in the huge market of general purpose users and would like to get some of the action," said Jon Peddie, publisher of PC Graphics Report, in Oakland, Calif.

Multimedia firms aim for workgroups

BY KELLEY DAMORE

Judging from demonstrations at last week's MultiMedia Expo, in Santa Clara, Calif., users will soon get multimedia capabilities in workgroup programs.

Lenel Systems International Inc. demonstrated a package that allows users to add multimedia capabilities to Microsoft Corp.'s Windows for Workgroups, to be announced this week.

MediaOrganizer for Workgroups enables users to create, transmit, and play electronic mail messages that combine text, audio, graphics, animation, images, and video. The program will ship in the fourth quarter of 1992. Users will be able to buy a three-user package for \$1,295.

Cognetics Corp. showed Hyperios 3.05, a hypermedia/multimedia software package that features sound support, self-running kiosks, capability, and international language support. It is available immediately. A professional version including style sheets costs \$579. A standard version that offers fixed templates is \$379.

Arts Entertainment of Mari-

na Del Rey, Calif., recently announced MPC Wizard, a Windows 3.1 video and sound driver disc for PCs and Macintoshes. The disk is bundled on a CD ROM and will cost \$14.95.

VideoLake Ltd. announced a software package that can add special effects to Macintosh QuickTime movies. VideoFusion uses standard cut, copy, and paste commands and gives the user capabilities such as pan-zoom, rotate, warp, morphing, and composite. The product will be available through VideoLake for \$1,495.

Aristosoft Inc. of Pleasanton, Calif., announced software designed to allow users without sound cards to take advantage of the sound capability in Windows. The \$79 product is available through dealers.

In separate announcements, Microsoft recently announced a multimedia library called Encarta. The CD ROM contains articles, animations, sounds, illustrations, graphs, and photographs, as well as an atlas and a dictionary. The \$395 product will be available in mid-December, Microsoft officials said. Microsoft also announced Mi-

crosoft Musical Instruments, a title that allows users to view the images and sounds of more than 200 musical instruments. The product is scheduled to ship next month for \$79.95.

Digital Imaging Associates recently announced a HyperCard application that allows teachers to assemble lessons and presentations that include high-resolution images, text, narration, and sound effects on the Mac. The authoring program, called Peak, is priced from \$795 to \$1,495.

Last week NewTek, maker of the Video Toaster, announced a link for the Macintosh. The ToasterLink allows users to create images in Mac applications and export them directly to the Video Toaster. The link is priced at \$595 and will be available in November.

Adam Software Inc., of Marietta, Ga., recently announced a software product that uses multimedia technology to inform medical students and patients of surgical procedures. The software will be priced from \$500 to \$5,750.

—Cate Corcoran contributed to this story.

EIS Pak builds apps atop Microsoft Excel

Toolkit expected out this week

BY DOUG BARNEY

Microsoft Corp. is set to announce this week Open EIS Pak, a toolkit for building Excel-based corporation information systems. The Pak will ship for \$99 next month.

The product uses dialog boxes to lead users through application development and then generates Excel macro code to create the application. Other Microsoft applications, such as Visual Basic, can be used with Open EIS Pak to build corporate information systems.

Open EIS Pak is loosely based on an earlier tool set from Lex Software Systems Inc. called AppGen/XL. Microsoft subcontracted the Open EIS Pak work to AppGen creator Tom Chester.

Many of Open EIS Pak's lead users are still using the earlier product from Lex.

Jim Craft, director of systems and operations for Bennington Capital Management, in Seattle, helped create an asset allocation

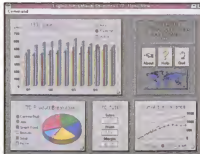
system with AppGen. The system, designed for money managers, has an optimizer based on a portfolio theory that helps users make the right investment decisions. The system also provides tutorials and can be used for sales presentations. "You can't tell that it is an Excel application," Craft said. The custom system saved Craft's company a lot of money and development time.

CSC Partners of Boston created an information system based entirely on Excel and Visual Basic. It tracks financial, administrative, marketing, and customer data that resides on mainframes and is available to users via a custom interface. The project, which has been in the works for more than a year and a half, "is a little beyond the capabilities of EIS Pak," said CSC's Rick Gass.

Although Gass says CSC has no plans to use Open EIS Pak, the product is a positive step for corporations looking to develop useful information applications.

National Semi-

Conductors has also developed an information system that relies on back-end data, residing under MVS and OS/2. The Excel-based application runs on both Macintosh and PC clients using the same macros, said Katharine Roth, National's project leader.



Users can build Excel-based corporation information systems with Open EIS Pak.

Object tools shown at OOPSLA by IBM, Borland, DEC, Digital

BY KELLEY DAMORE

VANCOUVER, British Columbia — At last week's Object-Oriented Programming Systems, Languages, and Applications (OOPSLA) conference here, vendors introduced development tools that will make it easier for programmers to move to object development.

IBM and Borland demonstrated their C++ compilers for OS/2 2.0. The C++ compiler will be integrated into its current C Set/2. IBM said. Both products will be available in the first quarter of 1993. Pricing has not been established.

Digital Equipment Corp. announced DEC C++, a set of development tools for Open-

VMS VAX systems, as well as a new release of DEC C++ for Ultrix. The products include a compiler, class library, debugger, and run-time library.

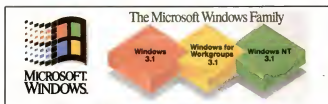
The DEC C++ for OpenVMS VAX compiler is available immediately for \$2,000. The Ultrix version will be available in December for \$2,360.

Digital demonstrated its Parts Assembly and Reuse Tool Set (PARTS) technology and its 32-bit version of Smalltalk/V for OS/2 2.0. PARTS Workbench for OS/2 2.0 is \$1,995 and Smalltalk/V is \$995.

Component Software Corp. of Lexington, Mass., announced Component Workshop, a C++ development tool that is priced at \$795 through year end.

To anyone who has
ever dreamed that
personal computing
could be even easier
than it is today.

This is your



Microsoft Windows makes using computers easier for everyone.

To date, millions of people have already opened their eyes to the Microsoft® Windows™ operating system.

Why? Because Windows makes their computing easier. Faster. And more reliable.

But we weren't about to stop there.

After all, people need their computers to do more these days than increase their level of personal productivity.

They need PCs to help them work together. And they need affordable ways to run powerful new programs.

So we've added two new operating systems to the Windows family.

To help people work together, we have just introduced Microsoft Windows for



MICROSOFT WINDOWS 3.1

Microsoft Windows is the business standard in operating systems. It's the foundation for all systems in the Windows family.



MICROSOFT WINDOWS FOR WORKGROUPS 3.1

Windows for Workgroups lets people work together through built-in electronic mail, file sharing, printer sharing and scheduling.



wake-up call.

Workgroups 3.1. It has built-in networking that gives you a whole new level of productivity.

And we'll soon be releasing the Microsoft Windows NT™ 3.1 operating system.

As a server or a desktop, Windows NT makes powerful computing easier. And it's ideal for people who need to use the most powerful hardware and applications available.

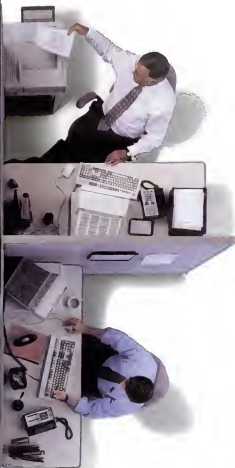


There's one way to make sure a new PC is going to be easier to use. Just look for this logo.

But here's the best part: They all share the intuitive Windows interface. And run the same applications. So you can preserve and build on all your investments in Windows.

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MICROSOFT WINDOWS NT 3.1

*It's a fully 32-bit, scalable, multitasking Windows operating system with built-in networking capabilities and advanced security. It will be available to end users in early 1993.**



Introducing Windows It's based on the idea that require a generous a

All it takes is a few clicks of the mouse to share files and share information. No more long walks down the hall.

Now several people can share printers, so everyone can use the printer that best suits their needs, just by clicking a button.

MICROSOFT WINDOWS FOR WORKGROUPS

Since we've included Microsoft Mail, you can instantly send electronic mail to individuals or everyone in your workgroup. You can even add sounds and pictures.

We've also included Microsoft Schedule+, so you can manage calendars and schedule meetings with others. And you can spend more of your workday actually working.

Windows for Workgroups. At business relationships amount of give and take.

As anyone in business would tell you, success often depends on how well you can work with others.

Not coincidentally, this is the strength of the Microsoft® Windows® for Workgroups 3.1 operating system.

In fact, with its built-in networking, one could describe Windows for Workgroups as downright gregarious.



The file manager toolbar lets you use your network as fast as you can point and click. It gives you access to commonly used functions, such as sharing files and sending documents, at the touch of a button. How could sharing information be any easier?

For starters, you can say goodbye to the old "mind if I borrow your disk" routine. With Windows for Workgroups, you'll be able to share files and applications, even printers, faster than you can say "eject."

And then there's this handy little feature called Schedule+.

Say you want a meeting on Tuesday with Matt, who has a meeting with Duncan and Karen, who, wouldn't you know it, are meeting with Jim that same day.

No problem.

Just a couple of clicks and, zip, everyone's schedules are laid out right in front of you. So you can book a meeting without making a jillion phone calls.

Even things as basic as sending memos are simplified with Microsoft Windows for Workgroups. Now you can send electronic mail, including voice and graphics, to anyone in your workgroup.

In other words, Windows for Workgroups lets you share something with your coworkers other than frustration.

But just because it has these advanced capabilities doesn't mean that you'll need an advanced degree to understand it.

Quite the contrary.

Microsoft Windows for Workgroups is based on the familiar interface that millions

of people have come to love. Even if you've never used Windows, it's the ideal starter network.

And since it works with Windows-based and MS-DOS® applications just like Windows 3.1, you can preserve and build on any investment you make in Windows.

Which brings up our final point.

Windows for Workgroups is great for creating workgroups on existing networks, like LAN Manager and NetWare®, as well.

All in all, Microsoft Windows for Workgroups will give you an entirely new level of productivity.

To find out more, go to your local computer retailer. Or call us at (800) 426-9400, Dept. HM9, for the store nearest you.

Once you find out everything it can do, you'll want to share it with everyone.



Microsoft
Making it easier

PIPELINE from page 17

ANNOUNCED

Visio gives users

ready-made graphics
Visio 1.0 from Shapeware Corp., a drawing program for Windows 3.1, provides users with ready-made stencils of shapes, such as diagrams and charts, that can be dragged and dropped into place. The SmartShape feature can assume different forms, proportions, and colors. It comes with ShapeSheet, a spreadsheet feature that defines the shape's geometry and properties in different situations. It will be available in early November and will be priced at \$299. (800) 446-3335.

DataEase Express for Windows, which shipped in September, was supposed to have included an ODBC driver to read and write Paradox 3.5 data. In fact, DataEase International is shipping early copies with a coupon good for the driver when it ships in November. All copies of DataEase Express shipped after early November will include the Paradox driver, the company said. (203) 374-8000.

SHIPPED

FastFonts update has 30 typefaces

FastFonts for Windows 3.0.6 from Atech Software provides users with some 30 typeface outlines with international characters that are scalable from four to 1,000 points. It is compatible with type managers such as TrueType, Adobe Type Manager, and HP Type Director. It is available for \$99.95. (619) 438-6883.

Peachtree Software added two new modules and more than 20 reports in its upgrade of Peachtree Accounting package for Macintosh 2.0. New features include inventory, job costing, bank reconciliation, and purchase order. An Import/Export module is free for a limited time with the purchase of Version 2.0. It comes at a price of \$99, and registered users can upgrade for \$49. (800) 247-3224.

BUNDLES

ImageCELS, Renderize offer imaging bundle
Visual Software Inc. and Imagetecs recently announced that Visual Software will bundle Imagetec's ImageCELS VGA CD ROM library with Renderize, a photorealistic three-dimensional image rendering utility for Windows. This bundle will enable designers to add 3D special effects more easily. Renderize for Windows is priced at \$895. (818) 883-7900.

Cross-platform image browse with Pictopocket

Low-resolution icons represent all Mac images

BY JEANETTE BORZO

Graphic designers, desktop publishers, and multimedia producers can manage on-line graphic images with a browsing utility called Pictopocket, from Impspace Systems Corp., of San Diego.

Pictopocket is one of three utilities included in Impspace's \$79 Kudo Portfolio. Other utilities included in Kudo let users convert images between various file formats and print samples of every font on a Macintosh system.

The Mac-based Pictopocket,

due for release on Windows later this year, creates low-resolution icons of a user's images so the user can browse through all available images without having to open separate applications.

"I work on a Mac and PC," said beta tester Steve Hoang, a software engineer at MediaShare, in Carlsbad, Calif.

"For me, the cross-platform compatibility is important," he said.

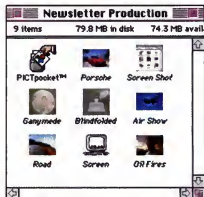
The System 7-savvy product is less expensive than more fully featured image database products such as Aldus Corp.'s

Fetch.

With Pictopocket, users can search for images by browsing visually through thumbnails or with search parameters found in the Macintosh Finder (file name, creation date, modification date, and attribute).

The product supports PICT, PICS, EPS, and QuickTime movie file formats.

"I deal with thousands of



Pictopocket users can browse through image thumbnails to locate the one they need.

pictures, and with this I can know in a quick glance what the picture is about," Hoang said. "It cuts down on the search time for me."

Users can contact Impspace at (800) 949-4555.

3-D Typestry for Windows impresses beta testers

BY JEANETTE BORZO

Beta testers are responding positively to Pixar's Typestry for Windows, due to ship next month along with a \$99 companion product called Glimpse.

Typestry, currently available on the Macintosh, lets users turn standard two-dimensional text into three-dimensional art. The \$299 product has a 2-D interface and lets users emboss, perforate, blur, extrude, and add shadows to text.

"I'm impressed by its simplicity," said beta tester Jamie Clay, manager of image development at Autodesk Inc., in Sausalito, Calif. "Potentially it is a very hot little product. I think the interface is fairly straightforward."

"I love it," said Doug Clemmshaw, associate professor at the Rochester Institute of Technology, in Rochester, N.Y. "It fills a really nice niche. It's a



Pixar's Typestry for Windows lets users create three-dimensional artwork with Type 1 and TrueType fonts.

new playpen for me."

The Glimpse utility lets users see the impact of various 3-D effects before embarking on the potentially time-consuming pro-

cess of applying the effects.

"This is a shortcut to having real-time feedback on the scene you're rendering," said Glimpse Rubattino, Pixar representative.

Lotus, Borland copyright trial is postponed until February

U.S. District Judge Robert E. Keeton pushed back to February the copyright infringement trial of Lotus Development Corp. and Borland International Inc. The case, filed more than two years ago, was to have been heard next month.

Lotus' original suits against Paperback Software and Mosaic were filed six years ago.

The jury trial will address all disputed copyright issues but will not determine what damages, if any, Borland must pay.

Borland filed two motions, and both were denied by Keeton. Based on recent cases

supporting its position, Borland filed a motion for reconsideration of the ruling that Quattro Pro violated Lotus copyrights. Borland also resubmitted a motion for an immediate appeal, which Keeton again rejected.

In other news, Borland will allow Lotus to depose a Borland employee about further violation of Lotus copyrights by Quattro Pro for Windows. Lotus said the fact that Quattro Pro for Windows is compatible with Lotus macros raises the possibility that the spreadsheet illegally copies Lotus 1-2-3.

— Doug Barney

Video Fusion lets users edit QuickTime movies

Users can alter and view videos frame by frame with a VideoLace Ltd. editing program for Macintosh QuickTime movies.

Video Fusion can be used with applications such as Adobe Premiere. It requires a Mac II or higher, System 7.0 or later, a hard drive, color display, 5 megabytes of RAM, and QuickTime.

The \$649 package is designed to take advantage of QuickTime by providing frame-based dynamic filters, the company said. These allow a user to change special effects as the movie changes, including panning,

zooming, rotating, warping, and morphing.

A user can also adjust the speed of a movie and move and reorder frames in a Storyboard view. A Script view links a word processor document to the frame to describe the document being edited.

In addition, the program can resize and colorize movies, overlay video, provide transitions, superimpose images, and blend images.

VideoLace, in Maumee, Ohio, can be reached at (419) 891-1090.

— Kelley Damore

Don't send your words out naked into the world.

Dress them up with Microsoft® TrueType® Font Packs for the Microsoft Windows™ operating system version 3.1 and Windows-based applications.

Because now, in addition to the original Microsoft TrueType Font Pack, you can have more ways than ever to make your point.

Introducing TrueType Font Pack 2.



It has more headline fonts.

More decorative fonts. More Wingdings.™ More great ways to express yourself in memos, letters and other documents.

(By the way, Font Pack 2 also has a handy type organizer called Font Assistant. It's like an electronic chest of drawers for your fonts.)

We even have a font set to update your HP® printer called, you guessed it, Microsoft Hewlett-Packard® Font Set.

So your ideas can always be dressed to a T. In fact, even your T's can be dressed to a T.

Which is important when your words are out there for all the world to see.

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A FRIENDLY REMINDER

Unfortunately, we have not received payment for the 12 Tahitian Swayback Guppies you ordered. It may have just slipped your mind. Or more likely, you've already sent in your payment, so just ignore this notice. We don't know what got into us. Sorry to bother you.

~~~~~  
You're special to us.



## 2nd Notice

Your account is now 60 days **PAST DUE**. We hope you are paying more attention to your guppies than you are to us. Remit your payment to avoid further action.

~~~~~  
Please pay your bill so we can pay our bills.



3rd and FINAL NOTICE

Your account is now **Seriously Delinquent**. If you do not pay the total amount due by Friday midnight, your guppies will be repossessed, your credit damaged and your fishing license revoked.

~~~~~  
Remember, we know where your guppies live.



## Thank You

We appreciate your prompt payment. As always, we value your patronage and we look forward to seeing you soon.

P.S. By now, you've discovered the phenomenal rate at which a Tahitian Swayback Guppy grows. Coincidentally, for a limited time, our 100-gallon aquariums are now on sale.

~~~~~  
Have a nice day!

Beta users say BitFax update is leaner and faster

BY JIM HAMMETT

Speed and a reduction in memory requirements were the most important improvements made to the DOS-based BitFax faxing application from Bit Software Inc., according to beta testers.

"I would have to say that the best improvement was in the small memory requirement in [BitFax,] Version 4.0 over

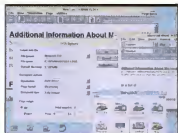
the 3.0.6 version we had," said Joe Chan, president of Spear Technology of Fremont, Calif.

Another improvement, the ability to fax a document from within a word processing document, has speeded up the faxing process greatly, Chan added.

Jonathan Wan, president of Bit Software, said that 30 to 35 new features or enhancements have been added to the

latest DOS update of BitFax, but that improving performance and reducing memory requirements were top priorities. "We had to address the demands of DOS users who wanted small-size programs but powerful functionalities," he said.

The DOS program has an 80K memory requirement even when all of BitFax 4.0's functions are available, according to



With Bit Software's BitFax/OCR for Windows, users can send a fax from within another application.

Wan. The user can load BitFax 4.0 into high memory to free conventional memory.

Printer emulation for Hewlett-Packard and Co. PCL-4 printers and Epson printers was another enhancement in the update.

Besides the DOS update, BitFax/OCR for Windows 2.0.5 is also now in beta. Both versions, which will be shown at Comdex in November, are expected to begin shipping at the end of this month. The DOS version is expected to retail for \$89 and the Windows version for \$199.

Bit Software, located in Fremont, Calif., can be reached at (510) 490-2928.

Competition forces Brightbill-Roberts to close its doors

BY SHAWN WILLET

Brightbill-Roberts & Co., makers of Hyperpad, Hypernet, and Showpartner F/X DOS software, has ceased operation, according to company officials.

"We didn't have the money to reinvest and educate people about the products anymore," said Stephen Brightbill, who cofounded the company in 1980.

Brightbill also cited the rise of Windows and increased competition as reasons for the company's demise. "We had a deal to sell Hypernet to Novell, which fell through this summer. That was the straw that broke the camel's back."

Brightbill is seeking buyers for the firm's products and said the company will fulfill current orders and provide limited support in the meantime.

Customers, however, report they are being left in the lurch. "They've already changed the order on my Visa card, but they haven't delivered any products," said Michael Blake at Vertical-Labs/InsuranceLabs, in Deer Park, N.Y.

Former Brightbill officials said they were trying to fill all outstanding orders before closing down operations.

Hyperpad was a simple DOS development tool designed for nondevelopers, and Hypernet helped users create applications on Novell networks. Showpartner F/X was a tool for creating slide shows with graphics and sound features.

"They had a good idea, but they couldn't sustain it with additional products," said Frank Dzubek, president of the consulting firm Communications Network Architects, in Washington.

Users who purchased Hyperpad bundled with Fujitsu pen computers will receive support from Fujitsu, said Ann Marie McGee, a Fujitsu representative in Santa Clara, Calif.

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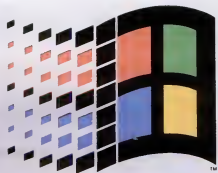
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Window Manager / Brian Livingston

A complex but effective way to increase the power of batch files

I was recently corresponding with a friend about how a batch file can find the directory that holds WIN.COM, WIN.INI, and other such files. The solution is by no means straightforward.

A full-blown Windows program can

always find out the directory that contains WIN.COM by asking Windows through a published application programming interface (API) call.

But you may need to find the Windows directory from a lowly batch file for a variety of reasons. Perhaps you want to use a batch file to distribute a Dynamic Link Library (DLL) you have

written in-house or to update one of Windows' drivers in every user's drive.

The developers of Windows created an environmental variable specifically to meet this need in batch files.

If you open a DOS session under Windows, and type Set by itself (no parameters), you'll see the current DOS environmental strings. One of them should be

something like "windir=C:\WIN." This variable's value is the directory that contains WIN.COM.

Unfortunately, this variable is of little use in its original form. This is because DOS always treats the names of environmental variables as all caps. You might try to use the "windir" variable in a batch file, as in this line:

```
copy my.dll %WINDIR%\my.dll
```

DOS looks for a variable named WINDIR, which should have the value C:\WIN. But Windows names its "windir" variable in all lowercase. Therefore, there is no match. A DOS batch file can't "see" the variable at all. Although I (and others) complained about this problem under Windows 3.0, it wasn't corrected in Windows 3.1. Fortunately, we can work around it.

First, the brute force method: You can use a byte editor to change the string "windir" to "WINDIR" in WIN.COM and WIN.CNF. (Setup uses WIN.CNF to build WIN.COM when you change your video driver.)

But if you'd rather not perform this surgery on every Windows installation, you can write a batch file that uses the value of "windir" correctly.

The following batch file fragment tests for the existence of the string "windir" in the DOS environment and jumps to the label NOWIN if it isn't found:

```
set find=windir>c:\temp_1.bat
copy c:\temp_1.bat c:\temp_2.bat
if not exist c:\temp_2.bat goto NOWIN
c:\temp_2.bat
```

The first line pipes the output of the Set command into Find, which is case-sensitive. Find writes the line it finds into a temporary file. If no line contains "windir," this will be a zero-byte file.

The second line copies the temporary file to a new name. Due to a bug in Copy (which thousands of batch files now rely upon), if the first file is a zero-byte file, the second file will not be created.

The third line, therefore, tests for the existence of the second file. If there is none, no "windir" was in the environment (Windows was not running).

But if the batch file was run in a DOS session under Windows, TEMP_2.BAT will contain a single line:

```
windir=C:\WIN
```

Running TEMP_2.BAT executes this line, running a file called WINDIR.BAT and feeding it a single parameter: the directory name. (DOS considers a single equals sign to be a blank.) WINDIR.BAT, which you must create yourself, does the real work with a line such as:

```
copy my.dll %1\my.dll
```

The replaceable parameter "%1" has the value C:\WIN. Just what we want.

Of course, if Microsoft ever fixes this variable, these batch files will no longer be necessary — nor will they work!

Brian Livingston is the author of Windows 3.1 Secrets (IDG Books). Send tips to: Compuserve 70053, 2035; MCI 420-0583; Internet 420-0583@mclmail.com; or fax: (206) 282-1248.

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NEWS / HARDWARE

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PRICE CUTS

Radius cuts price of MultiView board

Radius Inc. has cut the price of its 24-bit MultiView 24 graphics board for PCs to \$1,499. The company has also introduced a version of the board, which supports up to 16.7 million colors, for IBM's Micro Channel bus. That board, available now, is \$1,999. (800) 227-2795.

ANNOUNCED

Intel drops P5 name in favor of Pentium

As a philosophy, "A rose by any other name..." may work for most companies, but Intel Corp. hopes a drastic change in nomenclature will help keep clone chip makers from making inroads into its marketplace. Intel decided to drop its 15-year-old x86 label after a judge ruled the numbering system had become a generic part of the industry. Intel's next-generation chip, known as the P5, will now be called the Pentium, a copyrightable name Intel is sure won't be offensive in any language. But while Intel is confident its Intel Inside ad campaign and marketing prowess will establish the Pentium as the one and only, other vendors are planning ways to exploit the 586 designation.

A 260-megabyte, 2½-inch hard drive will be demonstrated by Areal Technology Inc. at fall Comdex. Notebook manufacturers are starting to move toward 120-megabyte hard drives, but Areal is counting on a demand for even more storage to fuel sales of its system. It is due out in the first quarter of 1993.

NEC Technologies Inc. will begin selling its systems directly to end-users through its Select Solutions Center, in Buxorough, Mass. The center was introduced in August and offers users a variety of preconfigured systems. (800) 374-8000.

SHIPPING

Grid unveils 386SL with docking station

Grid Systems Corp. late last week introduced a 386SL-based notebook with docking station. The \$4,495 active matrix Grid 1660 weighs 6 pounds and has a built-in trackball. It ships with Windows, a 125-megabyte hard drive, and a nickel hydride battery. The docking station supports one full-length and one half-length ISA card. (817) 491-5200.

HP releases RISC-based LaserJet 4

Two models feature high resolution, enhanced PCL 5 printer language

By TORSTEN BUSSE

Today Hewlett-Packard Co. shipped its long-awaited RISC-based LaserJet 4 printers.

New features of the printers include a true resolution of 600 dots per inch (dpi), an enhanced version of HP's PCL 5 printer language, and a bidirectional parallel interface.

Built around Canon USA Inc.'s unannounced EX engine, the LaserJet 4 comes in two versions: the \$2,999 LaserJet 4M for Macintosh users and the \$2,199 LaserJet 4 for PC users.

Both models offer a speed of 8 pages per minute and automatic port switching between parallel, serial, and optional HP Direct interfaces.

The interfaces support network operating systems, including Novell NetWare, Microsoft LAN Manager, and IBM LAN Server running on Ethernet or Token Ring, and HP-UX, Sun OS, and SCO Unix over Ethernet. The cards range in price from \$695 to \$895.



HP's LaserJet 4 offers 8-page-per-minute speed, a resolution of 600 dpi, HP PCL 5, and an i60 controller for \$2,199.

The printers ship with two paper trays that hold 350 sheets of paper, and the LaserJet 4 also has an optional third paper tray that offers four times the 20-sheet capacity of the LaserJet III. The LaserJet III will no longer be sold, effective

today, said Jim Wall, product manager.

The printers offer 45 scalable typefaces, including 35 TrueType typefaces and 10 TrueType fonts contained in Windows 3.1.

The LaserJet 4 printer ships

with 2 megabytes of memory and can be upgraded to 32 megabytes.

The LaserJet 4M offers integrated Adobe PostScript Level 2 software, a factory-installed LocalTalk card, and ships with 6 megabytes of memory, upgradeable to 22 megabytes.

With a controller based on Intel's 80960KA 20-MHz RISC processor, the printers offer faster processing of PostScript Level 2 and PCL 5 documents and faster parallel port data transfer—up to 156K per second, Wall said.

The standard Bi-Tronics parallel port offers bidirectional communications capabilities, allowing the printer to send printer status messages to the user's PC.

Stand-alone Microsoft DOS users can also control printer settings from their screens using the included Explorer software utility.

Hewlett-Packard, in Palo Alto, Calif., can be reached at (800) 752-0900.

ProLinea's sales put some clone makers in jeopardy

By SHAWN WILLET

Surging sales of Compaq Computer Corp.'s ProLinea line are coming at the expense of IBM and lower tier clone manufacturers, analysts said.

Revenues from ProLinea computers, introduced last June, helped Compaq post a 50 percent increase in sales last quarter over the same period last year. The company also posted a profit of \$49 million, despite manufacturing delays and layout costs.

The numbers were higher than Wall Street expected.

"The ProLinea has broken into arenas that only low-cost clones could compete in, for

example, as replacements for dumb terminals in large contracts," said Ross Cooley, vice president of North American sales at Compaq.

Analysts believe Compaq will be able to sustain the sales of its ProLinea line, which the company reported had 200,000 unit sales in September.

"I think this demand could persist into the March quarter," said Mike Kwatinetz at Sanford Bernstein & Co., in New York. "Compaq has gotten a lot more proactive about pricing; they've gotten a wake-up call."

Analysts said the ProLineas were taking market share from IBM's PC products, which lagged in sales this summer.

But they have also destroyed the pricing umbrella that helped second-tier manufacturers such as Everex, ALR, and Zeos survive, Kwatinetz said.

and Everex is contemplating either filing Chapter 11 or selling off a significant portion of its business, after a disastrous quarter.

"The ProLinea has broken into arenas that only low-cost clones could compete in."

Ross Cooley

All three companies are posting losses this quarter. ALR also announced it was laying off 15 percent of its work force.

The only bad news for Compaq was that its gross margins have gone down to about 28 percent, a new low.

Grid Systems to announce convertible pen-based notebook

By YVONNE LEE

The new pen-based notebook that Grid Systems Corp. plans to introduce at Comdex next month has enough features to make it attractive as a notebook computer, but it also allows users to write on-screen, according to those familiar with the forthcoming system.

"Momenta done right" is

how several sources described the system.

"The bottom line is it's the best-designed convertible I've ever seen, because they emphasize it as a standard notebook," said one source who asked not to be named.

The Intel 386SL-based notebook is lightweight and offers long battery life and a large hard drive while unobtrusively

allowing for pen input, sources said.

The 5½-pound computer, to be introduced at a press conference with Microsoft Corp. and State Corp. November 23, has hinges at the center of the screen that conceal the keyboard when the computer is used as a tablet. The hinge flips the other way to allow a good viewing angle when the ma-

chine is used as a notebook.

It will have a 120-megabyte hard drive and a built-in screen.

The notebook computer will run DOS and the Windows for Pen Computing operating system, which will allow it to run both desktop and tablet-based applications.

Grid officials had no comment on the unannounced product.

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In still other words, the new COMPAQ ProSignia.

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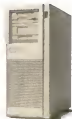
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Canon set to put its name on systems

By Tom Quinlan

Canon Computer Systems Inc. is attempting to shed its OEM reputation and become a billion-dollar player in the end-user market with a lineup of printers and computers.

Primarily known as an OEM supplier of bubble-jet and laser technology, Canon will market a line of systems and peripherals under its own label, said Peter Bergman, vice president of marketing for the new company.

The first products to bear the Canon Computer Systems label will include the \$549 BJ-200, a 16-bit ink-jet printer with a 360-dot-per-inch resolution.

Two laser printers, the LBP-4x and the LBP-8x; two desktop systems; and two notebooks round out the company's new products.



Canon's entry into the end-user market will feature systems and printers.

The laser printers come with PCL5 emulation, 24 fonts, and 1 megabyte of memory. With a print speed of 4 pages per minute (ppm), the LBP-4x has a list price of \$1,595. The 8-ppm LBP-8x sells for \$2,395.

The Innova computer systems being introduced by Canon include a 33-MHz 386SX-based system that comes with 2 megabytes of RAM, an 85-megabyte hard drive, DOS, and Windows 3.1 for \$1,399.

A 25-MHz 486SX-based system with 4 megabytes of RAM and a 130-megabyte hard drive is priced at \$1,899.

On the notebook side, Canon has introduced a basic 25-MHz 386SX-based system equipped with 4 megabytes of RAM, a 60-megabyte hard drive, and a built-in fax/modem for \$1,999. At the high end of the market, Canon is offering a 25-MHz 486SX-based system that features a color passive matrix screen, 4 megabytes of RAM, and a 120-megabyte hard drive for \$3,999.

The 486SX model can be upgraded to a 486DX2/50.

Canon, based in Costa Mesa, Calif., can be reached at (800) 848-4123.

Apple tests premium pricing

PowerBooks rely on features to offset extra cost

By Tom Quinlan

The latest PowerBook and midrange systems from Apple Computer Inc. have an air of deja vu, as the company that entered the notebook marketplace like gangbusters last year is again counting on style and performance to justify its pricing.

Despite acknowledging at MacWorld Expo last August that the advent of Windows had forced Apple to maintain a rough price parity with Intel-based PCs, at first glance Apple's new pricing seems far above the 15 to 20 percent premium Apple believes it can still command.

"To add the functionality that we have to the PowerBooks, a PC user would have to spend hundreds of dollars," Rothschild said, "and they still wouldn't get the same functionality and ease of use that we offer."

Although that is a familiar argument, it has a lot of adherents, particularly in regard to the PowerBook line. "How do you compare a PowerBook to a PC notebook?" asked Dick Shaffer. "It really can't be done."

"There's always going to be buyers out there who only buy on price, and Apple will probably never be able to compete with those low-cost clones," Shaffer said. "But some of

With notebooks based on the

486SLC architecture from Cyrix priced at less than \$1,500, Apple's PowerBook 145, 160, and 180 seemed overpriced — starting at slightly more than \$2,000 and ranging to as much as \$4,229.

By comparison, IBM Corp.'s recently introduced notebook with an active matrix color screen starts at \$4,300.

"We're not overpriced compared to the functionality that we offer," insisted Dave Rothschild, product manager for the new PowerBooks.

"To add the functionality that we have to the PowerBooks, a PC user would have to spend hundreds of dollars," Rothschild said, "and they still wouldn't get the same functionality and ease of use that we offer."

Although that is a familiar argument, it has a lot of adherents, particularly in regard to the PowerBook line.

"How do you compare a PowerBook to a PC notebook?" asked Dick Shaffer. "It really can't be done."

"There's always going to be buyers out there who only buy on price, and Apple will probably never be able to compete with those low-cost clones," Shaffer said. "But some of

those PC clones just give you a basic box and nothing else.

"If you look at companies that offer the same quality and service as Apple, then I think the new PowerBooks are very price competitive," he added.

And Apple has taken steps to cut costs in a variety of ways.



Apple's PowerBook Duo line is part of a broad effort to maintain momentum in the notebook market.

SuperMac Technology designed and will manufacture Apple's \$589 MiniDock for the Duo PowerBook series, and it will also license the design to other third-party manufacturers.

That not only makes SuperMac Apple's only non-Japanese manufacturing partner, it also promises to hold down costs for the MiniDock for users, according to SuperMac vice president Steve Blank.

It will also help Apple keep focused on providing core technologies, with third parties offering more specialized add-ons, said Bruce Cooper, product manager for the Duo line.

NCR rolls out 25-MHz 486SX that upgrades to Intel's P5 chip

By GATE CORCORAN

NCR Corp. last week started shipping a 486-based computer that can be upgraded to Intel's Pentium chip, also known as the P5.

The NCR System 3000 Model 3350 can be used as a desktop computer for high-end applications such as presentation graphics and modeling. It can also be configured as a departmental server, NCR said.

The base 3350 system comes with a 25-MHz 486SX processor, Micro Channel architecture, 4 megabytes of RAM, a 1.44-megabyte 3½-inch floppy drive, a 120-megabyte hard drive, a Super VGA graphics controller offering a resolution of 1,024 by 768 with 256 colors, Microsoft DOS 5.0, and a keyboard. The estimated street price is \$2,265.

The same system with a 486DX2/66 processor and 8

megabytes of RAM will sell for an estimated street price of \$2,985.

List prices were not available. The 3350 computer has many configuration and upgrade options. The system can be ordered with a variety of 486 chips, and each can be upgraded with at least one more powerful processor.

Users will be able to upgrade 486DX2/66-based systems to the Pentium when that chip becomes available, the company said.

The system can support as much as 192 megabytes of RAM and as much as 1 gigabyte of internal storage.

Customers can add a graphics subsystem that supports a resolution as high as 1,280 by 1,024.

The system comes standard with four 32-bit expansion slots. Prices can be reached at (800) 225-5627.

TI introduces 486-based line of notebooks with two color models

By YVONNE LEE

Four 486 notebooks will debut from Texas Instruments Inc. today.

The notebooks include a 25-MHz monochrome 486SLC, a 486DX/50 monochrome model, a 25-MHz 486SX passive matrix color system, and 486DX/40 passive matrix color model.

They each ship with internal floppy drives, a bundled pointing device, and Windows pre-installed. The monochrome models have 16-inch screens, whereas the color versions have 9.4-inch screens.

The color models weigh 6.3 pounds and the monochrome systems are 5.6 pounds. The company estimates battery life at more than 3 hours for all models.

All models are capable of displaying simultaneously on a



TI has added four systems to its TravelMate line, including a 486DX/50-based system.

VGA display. The TravelMate WinSLC/25 will display 16 colors at 800 by 600 pixels when the external monitor is only used. The other models will display 16 colors at up to 1,024 by 768 pixels on an external monitor.

The low-end TravelMate WinSLC/25 is available now. The monochrome TravelMate 4000 WinDX/50 is set to ship before Comdex in November,

and the color models are scheduled to ship in December.

The \$1,999 TravelMate WinSLC/25 ships standard with 2 megabytes of RAM, which can be expanded to 6 megabytes. It also comes with a 60-megabyte hard drive.

The \$3,899 TravelMate 4000 WinDX/50 ships with 8 megabytes of RAM, expandable to 20 megabytes, an 8K cache, and a 200-megabyte hard drive.

The TravelMate 4000 WinSLC/25 Color, which costs \$3,699, ships with 4 megabytes of RAM, expandable to 20 megabytes. It has a 120-megabyte hard drive.

The TravelMate 4000 WinDX/40 Color includes 8 megabytes of RAM, expandable to 20 megabytes, and a 200-megabyte hard drive.

Texas Instruments, in Austin, Texas, can be reached at (800) 627-3500.



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Hyundai unleashes Value line

Looks to add value with 32-bit VESA bus, local video

By SHAWN WILLET

Hyundai Information Systems Inc. is betting that technology such as a 32-bit VESA bus, a local video bus, and direct-mapped write-back cache will give its Value Engineering line an edge over competitors' PCs. The company is also launching two multimedia PCs and notebook PCs in an effort to differentiate itself from lower priced clone makers.

"We are placing more technology in the box than any other vendor, including Compaq, Gateway, and Dell," said Ed Thomas, president of Hyundai. "We are offering accelerated Windows performance and computing power at unmatched prices," Thomas said.

Standard on the Value Engineering line is 16K of cache on the motherboard. This direct-mapped Level 2 cache was designed to boost performance, especially on Windows applications. The Level-2 cache can be expanded to 64K.

Hyundai's 486 and Tower systems are also carrying an other new technology, the 32-bit VESA bus.

The bus will speed graphics and other applications and be compatible with the VESA local bus cards that are just starting to appear, said Patrick Day, Hyundai's vice president of systems development.

For users interested in multimedia, Hyundai is shipping two



With more than 50 new products, including the Value Engineering line, Hyundai is trying to become a force in PCs.

"We are offering accelerated Windows performance and computing power at unmatched prices."

Hyundai's Ed Thomas

486 multimedia PCs. The \$2,399 Player Platform Multimedia PC comes with speakers, a Sound Blaster-compatible sound board, and a CD ROM for viewing multimedia titles.

The \$3,895 Authoring system includes an additional screen capture video board and a MIDI interface. A TV tuner is optional on both models.

To round out its announce-

ment, Hyundai debuted two notebooks. The color Courier Spectra has a 25-MHz 486SLC and weighs 5½ pounds. The Courier has a monochrome screen and uses a 25-MHz 386.

The Courier Spectra is priced at \$2,999, and the Courier is \$1,899.

Hyundai, in San Jose, Calif., can be reached at (800) 933-3445.

Futura notebook PCs offer upgrade path

By YVONNE LEE

Notebook users can get a built-in upgrade path along with easy connectivity to a desktop with the Futura series, recently introduced by Amrel Technology Inc.

The notebooks' processors — which include a 25-MHz 486SX, a 33-MHz 486DX, a 486DX2/50, and a 486DX2/66 — can be upgraded via a snap-in daughterboard.

The base systems ship with an 80-megabyte hard drive, an internal floppy drive, 4 megabytes of RAM, a 10-inch VGA display, and a built-in trackball. Memory can be upgraded to 16 megabytes.

A 160-megabyte hard drive is also available, and a 200-megabyte hard drive is scheduled to ship by Comdex.

The pop-in docking station eliminates the problem of what to do with an extra screen and keyboard when using the notebook as part of a desktop system. Users insert the whole notebook into the docking slot just as they would insert a videotape into a VCR.

The floppy drive is accessible from the front of the docking station. The docking station has two 16-bit ISA slots, a Super VGA port, an internal fax/modem, keyboard connector, RS-232 port, and a hard drive space.

Pricing starts at \$2,399 for a 25-MHz 486SX system with an 80-megabyte hard drive and 4 mega-



Amrel's Futura series is designed to accept a series of 486 upgrade chips.

bytes of RAM. A 66-MHz 486DX2 system with a 200-megabyte hard drive and 16 megabytes of RAM will cost \$4,399.

Amrel Technology, based in El Monte, Calif., can be reached at (818) 575-5110.

Printer makers optimize products to specific OSes

Windows, Sparc users targeted

By TORSTEN BUSSE

Several printers optimized for use with Microsoft Corp.'s Windows or Sun Microsystems Inc.'s Sparcstations recently hit the market.

SRS Imaging has three new printers on the market, including the \$11,995 Imager 1200L. The 11-by-17-inch, 12-page-per-minute (ppm) PostScript-compatible laser printer offers a SCSI data transfer rate of up to 5 million characters per second (cps), compared with 3,800 cps for standard printer interfaces.

The \$6,995 Imager 17D prints 17 letter-size pages per minute at a resolution of 300 dots per inch (dpi) and offers duplexing mode. The \$2,000 Personal Imager is a 4-ppm unit offering a resolution of 400 dpi.

All three printers are designed for use with Sun's Sparcstations and servers and are compatible with Sun's NewPrint operating system, which takes advantage of the workstations' processing power and built-in SCSI interface for print-job rasterization and data transfer.

LaserMaster Corp. is shipping its new WinPrinter 600XL, which is designed for fast, 600-dpi Windows print-

ing. The \$3,695 printer rasterizes print jobs inside the host computer and sends them directly to the printer via a video cable. This task is performed in the background. The unit supports PCL4 and PostScript as well as TrueType and Type 1 fonts.

Fujitsu Computer Products America Inc. is shipping its RISC-based PrintPartner 10 and 10W, targeted at the small workgroup environment. The 10-ppm, 300-dpi printer features 35 embedded TrueType fonts and an optional \$499 TrueImage board for PostScript compatibility.

Mitsubishi Electronics America Inc. is shipping a SCSI driver for Macintosh users of the company's DiamondColor Print 300PS dye-sublimation printer.

The Chooser-level Quick-Draw SCSI driver offers faster data transfer and allows Macintosh users to directly print TIFF files. The driver is priced at \$395.

SRS, in Irvine, Calif., can be reached at (714) 457-7333.

LaserMaster, based in Eden Prairie, Minn., can be reached at (612) 944-9457.

Call Fujitsu in San Jose, Calif., at (800) 626-4686.

Mitsubishi is in Cypress, Calif., at (714) 220-2500.

IBM envisions electronic PET as man's best friend

By CATE CORCORAN

SAN JOSE, Calif. — What will computers look like in 25 years? At the AIX Expo last week, IBM took a shot at describing the future digital assistant.

Holding up a disk that fit comfortably in his palm, IBM vice president Bill Filip detailed the ultimate machine to attendees of the keynote address.

The pocket-sized Personal Electronic Thing (PET) measured an inch or two thick at the center but thinned at the edges for easy handling. Its round screen displayed a decorative landscape.

Users will write on the screen with a stylus or control the PET with voice commands, Filip said.

The screen will extend in all directions to give users more room to display information.

The PET will be used as a picture phone for personal tele-

conferencing with simultaneous translation, Filip said. It will also be useful for sending and receiving data from larger, remote computers over radio waves or wireless networks.

The PET will be made from a soft material that will identify the user's fingerprints. If someone other than the owner picks up the device, it will send all its information to another computer so data cannot be tampered with.

The material will sense the color of its surroundings and change its own color to match. But the PET won't be hard to find, because it will be in response to its owner's voice.

The PET will snap into a larger desktop version of itself with a separate large screen that can attach to a wall.

IBM will start building prototypes of PET soon, Filip said.

"Computer technology isn't worth anything if it doesn't facilitate the human endeavor," Filip said.



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Tech Talk / Steve Gibson

PCs need a little extra help to emulate complex sound of Macs

The much-bally-hooded multimedia extensions to Windows 3.1 deliver very little value to most Windows users, but some free and simple finagling can change that for your system.

PC users who have heard the supple

and compelling "ding" emitted from a Macintosh have experienced at least a moment or two of Mac envy. The sound support built into the hardware of every Mac puts the PC's awkward and croaking speaker system to shame. However, believe it or not, there's a simple (and free) way for Windows users to get Mac-quality audio from their systems.

Let's step back for a moment to understand more about the PC's sound features. The Intel-based PCs afford just two types of control over the system's internal speaker. It can govern the generation of a simple tone or, with the tone turned off, can deliberately turn the speaker's DC power on and off.

The first option of simple tone gener-

ation is extremely limited. This is the harsh "beep" sound we're used to hearing from the system whenever the PC is booted or whenever we do something that it doesn't like. That nerve-jarring beep bears very little resemblance to the Mac's seductively fading "ding."

The PC's tone-generation subsystem allows you to change the frequency of the tone, but there's no provision for controlling the tone's volume. So it is impossible to create the Macintosh's distinctive sound. True, the simple beep serves a clear purpose. Still, it does not push the PC's sound capabilities beyond their bare minimum.

At first glance, the system's second means of controlling the speaker appears to offer even less capability than the tone generator. The PC's processor simply turns the DC power to the speaker on or off. Either action produces a single audible tick from the speaker. When the speaker's power is turned on, the speaker's paper cone jumps either in or out, depending upon the polarity of the current running through the speaker's electromagnet. The rapidly moving paper cone produces an acoustic pressure wave in the air, which we hear as a single tick. Then, when the speaker's power is turned off, the paper cone returns to its center position, producing another audible tick.

For the sake of comparison to more sophisticated technologies, it's useful to think of this as a 1-bit digital-to-analog converter. Because a bit can only be either a 0 or a 1, the power to the speaker can only be either fully on or fully off.

More advanced sound generation systems, such as the popular Creative Labs Sound Blaster add-in audio board for the PC, give the microprocessor more control over audio output to the speaker. Rather than controlling only a single on/off bit of output, these systems incorporate a digital-to-analog converter that can convert a multibit value from the system's processor into a multilevel current to drive the speaker.

For example, a system with an 8-bit speaker port can set those eight bits to any value from 0 to 255, providing 256 separate levels of power to the speaker. This fine-grained control of power makes the production of high-quality sounds very simple.

Now that we understand the basics of how other systems are capable of producing high-quality sounds, and the PC's utter lack of sufficient hardware to make this possible, we're ready to appreciate the super-neat speaker driver that Microsoft chose to exclude from Windows 3.1. The driver is available on CompuServe in Data Library 15 of the Zenith forum; it can also be found by typing GO BMF (IBM File Finder) and searching for the file name **SPEAK.EXE**.

Those who do not subscribe to CompuServe can also find it on my own multiline BBS at (714) 362-8848.

Next week I'll plow into the operation of this nifty speaker driver in detail. Until then, enjoy some surprisingly great sounds from your PC.

Steve Gibson is the developer and publisher of SpinRite and president of Gibson Research Corp., in Irvine, Calif. Send comments to InfoWorld at MCI Mail 259-4127 or fax them to (415) 358-1269.

IN FOCUS

KARYL SCOTT

Executive Editor, Enterprise Computing

Profile: Over eight years covering the PC LAN and telecommunications industries and technology use in Fortune 2000 companies. Her responsibilities: put together the weekly "Enterprise Computing" section of *InfoWorld*, assigning and editing articles on information system trends and management issues, user case studies, IS profiles, and technical features.

Karyl on enterprise computing: "The term is used a lot now, and it probably means different things to different people. But in fact *InfoWorld* introduced the concept of enterprise computing in 1990—we've actually trademarked the phrase. From our perspective, it's where all of a company's computing resources come together to create a coherent whole. In other words, enterprise computing is at the heart of corporate IS in the '90s—'New Age IS,' as Stewart Alsop calls it."

On covering the enterprise "beat": "Because enterprise computing involves integrating everything from PCs and LANs to mainframes, from downsizing to distributed applications, the enterprise beat is as big as the whole spectrum of information technology. We try to keep an eye on what the buyers and users—that is, *InfoWorld's* readers—are doing. They're the ones who are driving the industry by discovering new applications and new ways of doing business with information technologies. We're just spreading the news."

On charting the future: "*InfoWorld's* mission goes beyond the products and technology of today. We want to help managers plan for the future. In 'Enterprise Computing,' it's our job—our privilege, really—to provide our readers with key information on emerging technologies and new ways of combining IS resources that will alter the way we all do business."

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PIPELINE
DEMONSTRATIONSComputer Mail links
MCI Mail to Unix

Computer Mail Services will unveil at InterOp M-Bridge for Unix, a gateway linking MCI Mail to Unix mail systems using MCI's M-Bridge Message Handling Service (MHS). The connection gives users message exchange between the Unix network, global Internet, and LAN E-mail products supporting MHS.

M-Bridge for Unix will be available in the first quarter for \$4,995.

Fibermax Corp. will show Windows and Unix versions of its LightWatch/Open network management system integrated with Hewlett-Packard Co.'s OpenView network management platform. LightWatch/Open for Unix 1.0 costs \$6,000 and ships in December; the Windows version ships in January. (818) 709-6000. Booth 2102.

Asante Technologies Inc. will introduce Version 2.1 of its AsanteView intelligent hub management software. It operates on Macintosh and PCs and features a dashboard network health meter for identifying network bottlenecks and optimizing network performance. Shipping in late November, the software-hub bundle is priced at \$1,999. (800) 622-9686. Booth 5751.

PARTNERSHIPS

Pacific Bell partner in network initiative
Remedy Corp., Isiscid Inc., and Hewlett-Packard Co. will announce the addition of Pacific Bell as partner in the Comprehensive Network Management initiative, a group trying to provide comprehensive LAN and WAN management solutions built around the OpenView management system.

STANDARDS

APPI members set peer-to-peer specs
Members of the Advanced Peer-to-Peer InterNetworking (APPI) Forum — a group developing an open systems alternative to IBM's Advanced Peer-to-Peer Networking architecture — during InterOp will hold their first meeting to set specifications. The core APPI technology will combine interNetworking features of TCP/IP with SNA peer-to-peer communication.

Show promises help for managers

BY TORSTEN BUSSE

Network administrators looking for better ways to manage systems will find a lot of help at this week's Interop show, in San Francisco.

Heading the list, the Desktop Management Task Force (DMTF)—a consortium made up of IBM, Digital Equipment Corp., Hewlett-Packard Co., Novell Inc., SunConnect, Microsoft Corp., Intel Corp., and SynOptics Communications Inc.—will preview the industry's first multipatform enterprise management architecture. (See "API spells management relief," August 17, page 3.)

The group will also make public its plans to release APIs that support a full suite of hardware, software, and desktop management products.

Although DMTF is not expected to announce a shipping product, Intel, Hewlett-Packard, ProTools Inc., and Cisco Systems plan to announce manage-

ment packages.

Intel will show its Windows-based LANDesk family of node management software, which went into beta testing last week. Designed as an integration point for standard network management tasks, LANDesk provides remote systems access, hardware and software inventory, applications and packet monitoring, virus protection, and administration of Novell's NetWare utilities. It uses a single agent and supports SNMP. Cisco will demonstrate the latest version of its NetCentral SNMP-based router-management application running on SunConnect's SunNet Manager 2.0 management platform.

Now called CiscoWorks, the \$9,995 software includes an integral relational database, historical analysis, and monitoring and configuration tools.

Cayman Systems Inc. will debut the latest upgrade to its software Release 2.2 diagnostic application for its GatorBox CS



Intel's LANDesk Windows-based management software supports remote access and hardware and software inventory data.

LocalTalk-to-Ethernet router and the GatorStar GX 24-port repeater/router. Release 2.2 offers full SNMP support, advanced port mapping features, and automatic problem isolation.

ProTools will demonstrate

the result of its recently signed agreement with Rascal-Datcom Inc., which will integrate ProTools' Network Control Series into the Rascal Management System to offer remote LAN and WAN monitoring and analysis.

Users to gain multiple network access from Windows

BY KAREN RODRIGUEZ

Windows users next month will be able to access multiple networking environments directly from the desktop thanks to Cogent Technologies Inc.'s

WinNet Plus.

Expected to be announced at InterOp this week in San Francisco, the WinNet Plus Windows multiprotocol package will allow Windows clients on NetWare to access most other popular network protocols, according to company officials.

The first release will support Microsoft LAN Manager, IBM's LAN Server, Banyan Vines, 3-Open, DEC Pathworks, and Sun PC-NFS. Macintosh support is expected as early as December.

"With our

Windows extender, desktop users can run Windows and see all the other [networking] protocols available," said Charles Anderson, vice president of Cogent. From a single dialog box, WinNet Plus users employ a simple pull-down menu to view, connect, and disconnect drives or printers across the network regardless of network operating systems.

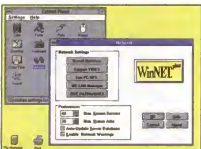
The product is integrated into the Microsoft File Manager, Print Manager, and Control Panel providing native Windows connectivity. Implemented as a Windows Dynamic Link Library (DLL), WinNet manages all user requests for each loaded network operating system without using up memory.

MPNet, bundled with WinNet, is a low-level driver

utility that provides the DOS multiprotocol support for the major network operating systems. MPNet automatically creates a DOS configuration based on the selected network operating system environment, Anderson said.

Available for DOS and Windows users, WinNet Plus is priced at \$89 until the end of January, after that it will increase to \$149 per user. A version for Microsoft's Windows for Workgroups will be announced at the October 27 rollout and will ship by the end of November. A version of Microsoft NT is also being developed.

Cogent Technologies is based in Friday Harbor, Wash., and can be reached at (206) 378-2882.



WinNet Plus Windows let users link up to other networks from their desktops.

BY JAYNE WILSON

An asynchronous transfer mode backplane will be the centerpiece of a suite of technology demonstrations from Hughes LAN Systems at the Interop show this week.

The products are designed to provide a migration path from today's shared media token technologies such as Ethernet, Token Ring, and FDDI to the "band-

width on demand" ATM networks, Hughes officials said.

Hughes' ATM suite includes the Enterprise Hub ATM backplane, a Remote Monitor (RMON) multigressment probe for the hub, and a Simple Management Protocol (SMP) implementation.

"At this point, these are technologies only," said Lauren Hipp, product line manager. "We expect to announce prod-

ucts using ATM sometime in the second half of 1993."

The Enterprise Hub ATM, a 1.6-gigabit-per-second backplane, does native-mode ATM switching. It supports dedicated LANs and high-speed internetworking as well as the ATM User Network Interface, Network to Network Interface.

The RMON probe is a hardware module that resides in the hub and connects to all three

Ethernet segments. It includes software and is capable of monitoring traffic on multiple LAN segments simultaneously, allowing local or remote traffic monitoring on all three segments of the hub simultaneously.

The SMP implementation is an enhanced version of SNMP that provides manager-to-manager communication and bulk data transfer of management information.





In the next few months, you'll notice a bright red "yes" symbol popping up on thousands of hardware and software products. Why? It means each and every one runs with NetWare® — the world's leading networking software.

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Network Software beeps up line of 3270 emulators

BY CHERYL GERBER

Network Software Associates Inc. has souped up its line of 3270 emulators with fuller and more direct TCP/IP backbone support, eliminating the need to use the cumbersome Telnet standard to achieve TCP/IP connectivity.

The company's new products supply SNA PC-to-mainframe links over TCP/IP backbones for its Windows, DOS, APPC for Windows, and LAN gateway products.

Specifically, the company added TCP/IP drivers to its three software products — Version 2.2 of 3270/Elite Plus, which supplies 3270 emulation under DOS; Version 3.4 of DynaComm/Elite, which provides 3270 and APPC communications under Microsoft Windows; and Version 4.4 of the AdaptSNA LAN Gateway, which supplies LAN-to-main-

frame communications for Token Ring, Ethernet, and ARC-net LANs.

Starting in November, the TCP/IP link drivers will be included as standard features of these new versions at no additional charge.

They all provide support for third-party TCP/IP protocol stacks, such as Novell Inc.'s LAN Workplace and Sun Microsystems Inc.'s PC-NFS.

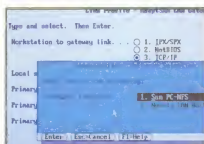
The company said the products improve on the current method of accessing TCP/IP, as most SNA 3270 mainframes access TCP/IP networks through emulators that use the Telnet 3270 standard.

Network Software said its TCP/IP software provides all the functions that the Telnet 3270 standard does not — without requiring a server on the host.

The 3270/Elite Plus is priced at \$395, and the DynaComm/Elite is \$495. Both are available in network license versions.

Prices for the AdaptSNA LAN Gateway range from \$595 to \$3,995.

Network Software Associates, in Laguna Hills, Calif., can be reached at (714) 768-4013 or (800) 352-3270.



NSA's AdaptSNA LAN Gateway links desktops to clients across multiple protocols.

Transports add TCP/IP

Corporate Microsystems Inc. has broadened its data transport offerings with a TCP/IP version of MLink and an E-mail system designed to operate with MLink and Advanced Communications Manager (ACM).

MLink with TCP/IP begins shipping this month with prices ranging from \$295 to \$490 according to operating system.

ACM Mail uses an interface consistent with Windows, OS/2

Presentation Manager, and Apple's Macintosh systems.

The E-mail product provides an API that permits applications to interact with the mail data transport system without operator involvement. ACM Mail also interfaces with other mail systems by supplying gateways to such packages as cc:Mail.

CMi, in Lebanon, N.H., can be reached at (603) 448-5191.

— Cheryl Gerber

Cabletron suite manages move from SNA to multiprotocol LAN

BY CHERYL GERBER

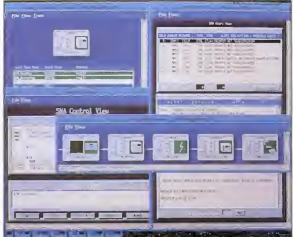
Cabletron Systems Inc. will debut during this week's Interop a suite of hardware and software products for managing migration from an IBM SNA networking environment to multiprotocol LANs.

The combined offerings set a framework for connecting and managing Internet Protocol and SNA devices throughout an enterprise system, the company said. They include BlueVision, SNACMIM, TRBMIM, and TRXI.

BlueVision manages SNA and SNMP devices for Cabletron's Spectrum platform through a link with IBM's NetView by providing peer-to-peer connection between Spectrum and NetView. BlueVision runs on the RS/6000 platform and will be sold unbundled beginning in January for a price of \$14,995.

BlueVision's SNACMIM platform allows 3270 and 4700 controllers to participate on a Token Ring network, thereby terminating Synchronous Data Link Control (SDLC) traffic from controllers and converting it to Token Ring network format.

TRBMIM is a two-port local



Cabletron's BlueVision manages SNA and SNMP devices from the Spectrum management platform by linking with IBM's NetView.

source routing bridge and management module for Cabletron's Multi Media Access Center that enables bridging and management of Token Ring networks in one hub. It supports all SNMP-compliant management systems and IBM's LAN Manager. Priced at \$6,995, TRBMIM will ship at year end.

The TRXI line of hubs is designed to provide Token Ring management to low-connectivity work areas. The TRXI supports a migration path to RMON, the developing standard for monitoring traffic rates in Token Ring networks.

SNACMIM comes with either two or four ports. Available at year end, the two-port version is priced at \$3,495 and the four-port is \$5,195.

Cabletron, in Rochester, N.H., can be reached at (603) 332-9400.

Ethernet switch offers low cost, high bandwidth

BY JAYNE WILSON

Artel Communications Corp. is targeting workgroups needing high bandwidth at low cost by introducing a 60,000-packet-per-second (pps), eight-port Ethernet switch for \$900 per port.

The Starbridge Turbo enables users to divide their networks into eight smaller segments.

This architecture increases efficiency among high-traffic users because they can be partitioned from other network

users, the company said.

"Running over traditional Ethernet products like intelligent hubs or repeaters, network-intensive applications will typically run into bandwidth constraints," said Kevin Conklin, Artel's director of marketing.

Turbo also offers full bridging between all eight segments and is based on the Intel i960 RISC chip. It interconnects segments through a packet-switching architecture equivalent to an 80-megabit backbone, allowing multiple parallel communication sessions.

Starbridge Turbo allows users to hook up redundant links and supports restricted tables, a security feature that allows filtering based on source addresses and can isolate specific addresses from the network.

The product is configurable for any standard Ethernet media type, is protocol independent, and can be installed without configuration as it learns device locations automatically.

Starbridge Turbo will ship in November for \$7,200. Artel, in Hudson, Mass., can be reached at (508) 562-2100.

SunConnect to provide inexpensive access to high-speed WANs

BY TORSTEN BUSSE

SunConnect, a Sun Microsystems Inc. business, will introduce this week three Sparc-based applications intended to provide users with low-cost access to high-speed WANs.

SunLink ISDN, SunLink Frame Relay, and SunLink PPP enable LAN applications such as client/server databases, X

Windows systems, Network File Systems, and multimedia applications to run more economically over high-speed WAN connections, said Lloyd Spencer, SunConnect's product line manager for global communications.

"Also, all three applications can be managed with the SunNet Manager, which offers local or remote management capabilities," Spencer said.

SunLink Frame Relay offers transparent Internet Protocol connections over WAN links with T1 speeds, and it supports 1,022 virtual point-to-point connections.

An included management agent offers virtual circuit statistics based on the Internet draft RFC 1315 standard.

SunLink PPP allows a Sparc host to act as a router or sup-

ports any router that handles PPP, including those routers made by Wellfleet Communications and Cisco Systems.

SunLink PPP offers communications between Sparc systems and T1/E1-speed links, enabling the Sparc host to route TCP/IP traffic over point-to-point links using the PPP protocol.

SunLink PPP and SunLink Frame Relay will ship in No-

vember at a list price of \$1,150 each. SunLink ISDN will be bundled with Sun's multiprocessing Sparcstation 10 in the first half of 1993.

Use of the workstations can access corporate networks over ISDN phone lines.

SunConnect, based in Mountain View, Calif., can be reached at (800) 241-2669.

Apple
announces
two entirely
unexpected
ways to
get ahead in
business.



1. At your desk, the Macintosh Duo System offers more flexibility than most desktop computers. Support for up to a 16-inch color monitor and up to six external peripherals is built in. Plus a pair of expansion slots and a floppy disk drive.



2. Touch the Eject button, and out slides a 4.2-pound PowerBook Duo. 210 or 230. The former clocks in at 25 MHz; the latter at 33 MHz. With a nickel-hydrate battery that provides up to 4.5 hours of power.



3. At your kitchen table, you're working with the same files and programs you were using at the office. Not to mention 4MB of memory (expandable to 24MB), up to 120MB of hard disk storage and an optional internal modem.

Come and go as you please.



The new Macintosh Duo System.

These days, you may find yourself needing a computer in more than one place. At your desk and on the road. In your den and at the office.

How do you get your work from your notebook computer to your desktop computer and vice versa? How do you make sure you're always working with the latest version of a file when you're constantly jumping from one computer to another?

You could buy an expansion base for your notebook computer. But you'd have to reconfigure your system and fiddle with cables every time you connected it. And if you removed your notebook in a hurry without first saving your work, you'd lose what you'd done.

Or you could simplify things with the new Macintosh Duo[®] System.

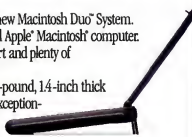
At your desk, it's an extremely powerful Apple[®] Macintosh[®] computer. With built-in networking, color video support and plenty of expansion capabilities.

Touch one button, and out slides a 4.2-pound, 1.4-inch thick Apple Macintosh PowerBook Duo[®]. With an exceptionally bright 16-level gray-scale screen, an integrated trackball and palm rest, and up to 120MB of internal hard disk storage.

And with our new PowerLatch[™] technology, a combination of elegant hardware and intelligent software, virtually all the complications of desktop-to-everywhere-else computing are eliminated.

If you try to eject the PowerBook Duo before you've saved your work, it warns you no nothing is lost. Insert the PowerBook Duo into the Duo Dock, and it remembers which printer and network resources you were using before you left. And you're always working with the same files you were using at your desk.

Introducing the remarkable new Macintosh Duo System. It's not just the best of both worlds. It's the easiest way to go from one to the other.



At just a bit more than 4 pounds and less than 1.5 inches thick, it's our lightest, smallest and most powerful PowerBook yet.



Add an optional PowerBook Express Modem, and you can plug in a phone line to send and receive faxes from a hotel room, send and receive e-mail or access all the resources of a Macintosh network. Plug in a network, and you can use printers or share files with other computers. So no matter where you are, you carry the power of your whole office with you.



The PowerBook 160 and 180 have external video support. You can plug in a VGA or an Apple monitor and work with up to 256 colors. Or use a variety of projection devices that let you give spectacular large-screen presentations.

Get out and stay out.



The new PowerBook 180 offers video out, extraordinary performance (33 MHz) and the gray-scale successor to the active-matrix display already considered to be among the best in portable computing. A screen so bright and sharp, you have to see it to believe it.



The new PowerBook 160 offers video out for presentations and color monitors, an exceptionally bright gray-scale screen and enough power for almost any business application.



The new PowerBook 145 offers the next performance of our best-selling PowerBook 170 and a bright superhigh display at a price that fits in a student's budget.

The enhanced PowerBook family.

We began with the only personal computer to be named a Product of the Year by *Fortune*, *Business Week* and *InfoWeek*.

The only notebook computer to integrate a palm rest and trackball into the keyboard, making it comfortable to work on your projects even when you're wedged into the tightest coach seat.

A notebook computer that lets you easily transfer files between DOS, Windows and Macintosh, thanks to the built-in SuperDrive.*

A notebook computer that lets you work a thousand miles away with an entire network of computers—Macintosh, Windows, mainframes, even mail servers—as if you were actually sitting in your office. (This is made possible by adding an Apple software breakthrough known as AppleLink® Remote Access.)

A notebook computer that lets you send a fax with one touch of a button. Or receive one without leaving your hotel room.

And generally makes it easy for you to do everything you do when you're at the office without ever having to go to the office. That was where we started, mind you.

Then, we added a lot of things people asked us for. Like a video connector in the 160 and 180 that lets you plug in a VGA or an Apple monitor and work with as many as 256 colors. Or plug in a projection device and give stunning full-color presentations complete with sound and animation. We added brighter, gray-scale screens.

We added significantly more power, speed and storage capacity.

And a system we call the EverWatch® battery saver, which extends the life of each battery charge to as many as three hours.

Yet we've actually lowered the price. So now, millions more people who've always wanted a PowerBook® can afford one of their very own.

It's more of the power you want with you always. The power to be your best.



PowerBook was the only personal computer to win a Gold Medal in the annual Industrial Design Excellence Awards sponsored by Business Week and the Industrial Designers Society of America.



DEC lets Sun workstations connect to DEC clusters

BY JAYNE WILSON

This month, DEC will provide software to allow Sun workstations to communicate with PC and mainframe members of DEC clusters.

The introduction of Network Application Support (NAS) 250 for SunOS Sparcstations makes good on Digital's promise to extend its middleware offerings to other vendor platforms. Also this month, DEC announced an NAS upgrade for its Open VMS and Ultrix operating systems.

DEC's NAS family allows users to communicate between different operating systems by providing a common software layer between them. The NAS products package together various APIs to address specific computing needs.

The NAS 250 for Sun is a desktop run-time product that provides connectivity features — including application and data integration.

NAS 250 also allows Suns to become development platforms for workgroup applications. It integrates Application Control Architecture (ACA) services —

a set of object-oriented facilities that let users tie applications together across different platforms on a network. Customers can build object-oriented applications today and link them with existing applications.

Also integrated are Compound Document Architecture run-time services for creating, storing, and interchanging compound documents.

"Using NAS 250 for Sun Sparcstations and ACA services for MS-DOS, PCs can invoke a Sun application from within an MS Windows application," said Dennis Phelan, NAS director of marketing.

Also announced was Version 2.0 of NAS 200 and NAS 300 for Open VMS and Ultrix servers, as well as NAS 400 for Open VMS. New to Version 2.0 is OMG's API, expanded support for Windows and Macintosh systems, enhanced multimedia support, a common forms environment, and expanded network capability.

NAS 250 for SunOS Sparcstations is priced at \$265. Prices for NAS Version 2.0 for Ultrix and Open VMS start at \$1,970.

Eclipse adds 20 enhancements and an OCR module to fax package update

BY SCOTT MACE

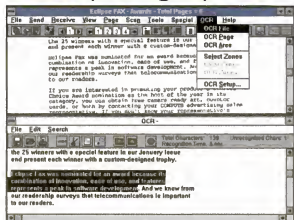
Eclipse Systems, which debuted its Windows-based fax communications software earlier this year, will add more than 20 user-requested enhancements this month.

Eclipse Fax 1.2 will let users send cover pages for quick notes, erase portions of faxes while annotating them, delete multiple pages in thumbnail view, and double-click on the thumbnail page to switch to a view that makes the best fit of a fax image on-screen.

The package will also support Class 1 fax modems, right mouse button access to logs, and automatic fax forwarding.

Eclipse Fax 1.2 will be bundled with Polaris Software's PackRat personal information manager for Windows, said Victor Schiller, Eclipse chairman and chief executive officer.

The Eclipse Fax and PackRat bundle lets users easily exchange information between the two programs. For instance, users can search PackRat's phonebook for individual and compa-



Eclipse Fax 1.2 adds a slew of features, including fax preparation support, OCR, and a personal information manager.

ny names or phone and fax numbers while in Eclipse Fax.

The bundle is available now for \$519 from Polaris Software, in Escondido, Calif.

Eclipse Fax 1.2 is priced at \$119. A \$149 version adds an optical character recognition (OCR) module, using technology from Ocron Inc., that lets

Eclipse Fax 1.2 users scan entire pages or regions such as multiple columns of text.

The OCR module can also be trained to recognize fonts off groups of faxes that come from the same sender, Schiller said. Eclipse Systems, in Chicago, can be reached at (312) 541-0260.

The quickest way
between two points used to be
a straight line.

Vendors ship first wave of network, modem cards

By YVONNE LEE

A slew of vendors have recently announced network and modem cards that fit in standard slots on notebook computers.

The cards meet the Personal Computer Memory Card International Association's Version 2.0 standard, which allows compliant cards for various peripherals, similar to the way expansion cards fit in desktop ISA slots. The standard lets computer vendors reduce machine size without reducing features.

Communication hardware firms have begun to introduce network adapters and modems.

D-Link Systems Inc. of Irvine, Calif., was one of the first companies to ship Ethernet adapters. The Ethernet PC Card contains the network interface card (NIC) controller, I/O interface, ROM for configuration storage, and RAM for data buffering. The price for a card and cabling connector is \$395. Drivers support IBM PC LAN, OS/2 LAN Server, Novell NetWare, Microsoft LAN Manager, DEC Pathworks, SCO Unix,

FTP TCP/IP, NetBIOS, and D-Link LANSmart networks.

Thomas Conrad Corp. of Austin, Texas, is shipping three adapter cards: the \$359 TC5041-T for 10Base-T Ethernet, the \$375 TC5051-2 for coaxial Ethernet, and the \$799 TC4041-STP for Token Ring. Network drivers support NetWare and LAN Manager.

Data Race Corp. and Megahertz Corp. are shipping high-speed, 9,600-bit-per-second (bps) fax/modems. The V.22bis devices send and receive data at 9,600 bps and receive data at 2,400 bps.

Data Race of San Antonio, Texas, ships three V.32 Series modems in its RediCard line. Megahertz Corp. of Salt Lake City will ship its PCMCIA modems in December. The Megahertz CC3144FM Notebook Fax/Modem sends and receives both data and faxes at 14.4 kilobits per second. The Megahertz CC324FM Notebook sends data at 2,400 bps and faxes at 9,600 bps. The CC3144FM has a tentative price of \$699; the CC324FM is \$429.

Solomon puts accounting on server

Network accounting system can now run as an NLM

By KATE ORRANGE

Solomon Software's network accounting system can now run as a NetWare Loadable Module on Novell's NetWare 3.11, offering increased performance and speed.

The Solomon III NLM Network System Manager, announced at NetWorld and scheduled to ship in December, takes advantage of Novell's client/server NLM technology to allow it to run on the network server.

"This provides for more accounting databases and additional users, and frees up a workstation," said Skip Reardon, senior marketing manager with Solomon Software. It also enhances speed, because you don't need to run across the network to get additional files, Reardon added.

The NLM version of the Solomon System Manager manages all of the functions of Solomon Software's accounting modules, which are available separately and include general ledger, accounts payable, and payroll.

"Solomon III is targeted at businesses in the \$1 million to \$100 million range who are rightsizing," Reardon said.

Solomon III NLM features data integrity and flexibility on a LAN. The system is password protected.

It also allows for simultaneous access by multiple users, but while a record is being updated it remains locked to ensure data integrity. If the network crashes, a user can return to the system with debits and credits in balance.

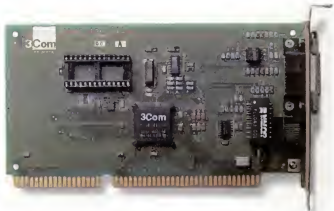
Users can also add new fields to screens and perform custom calculations without programming or source code changes with Solomon III's development system, *SolomoNotes*. The *SolomoNotes* screen designer is menu-driven and uses a hotkey. Authorized users can make design changes to the package.

The NLM version requires NetWare 3.11 or later and at least 8 megabytes of RAM. The NLM can support up to 255 users per Novell database server.

Pricing for the Solomon III NLM Network System Manager starts at \$1,295 for a three-user version. A 50-user version is available for \$14,475. The accounting modules range in price from \$895 to \$995 per package. Solomon Software, in Findlay, Ohio, can be reached at (800) 879-2767.



The *SolomoNotes* screen designer makes it easy to add new data fields and screens.



Now it's Parallel TaskingTM

Introducing EtherLink[®] III, with Parallel Tasking, the fastest, most advanced adapter family available.

EtherLink III is 25 percent faster than the leading adapter today. Its Parallel Tasking design uses pipelining to push communication between PC and network to the limit. It's so unique it's even patent-pending.

The result: a 16-bit adapter family that lets you take full advantage of your ISA and EISA machines.

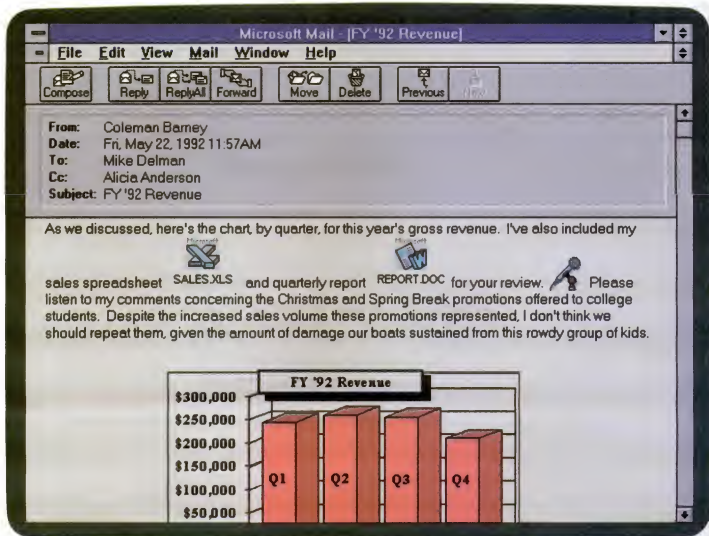
Yet EtherLink III is so easy to install, all you type is one command. The adapter does the rest, configuring

itself automatically. And it comes with network management capabilities and supports all major media types. Yet for all this, the EtherLink III family is so reliable that should one ever fail, 3Com will replace it free of charge.

To learn more about this remarkable Parallel Tasking adapter and its surprisingly low price, call 1-800-NET-3Com. Or see your nearest 3Com reseller. You'll find an adapter technology that's faster than all the others.



We've brought n the expression.



Now you can send virtually anything and everything through the mail. How's that for effective communication?

With the help of our all-new Microsoft® Mail version 3.0, you can now send and receive virtually anything through the mail. So there's no excuse for not getting your message

across. We're talking charts, pictures, sound, parts of spreadsheets and other documents, even entire files. And you can place them anywhere you want in your messages.

new meaning to "It's in the mail."

Furthermore, you can send mail while you are working in another software program. Like, say from your word processor or spreadsheet.



Microsoft Mail 3.0 supports every popular desktop computing platform.

And when you get a message with a file attached, just double-click on the icon and Mail will launch the application and open the file.

Pretty impressive, isn't it? Well, equally impressive is how easy it is to use. Take our Toolbar for instance. It allows you to perform everyday functions with the simple click of a button. Everyday things such as managing, sending, forwarding, replying and deleting mail messages.

Or how about a global address list to easily send mail to anyone, anywhere - whether they are down the hall or down the road?



Thanks to our built-in spell checker, there's never an embarrassing typo.

Or a personal address book to maintain a private list of individuals or groups you mail regularly?

And let's not forget our new Message Finder. It helps you find all of those super important messages with newfound ease.

Lastly, when it comes to connectivity you should really come to expect the world of us. We offer the largest selection of full-featured gateways of any LAN e-mail vendor.



Introducing the all-new Microsoft Mail 3.0. It's part of a complete line of software applications.

Which means you'll be able to send messages clear across the planet.

To learn more, or if you'd like to receive a free Working Model, just pick up the phone and give us a call at (800) 227-4679, Dept. HI9.

And the next time somebody asks for a copy of that sales report, or whatever, tell them it's in the mail.

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Making it easier



LAN Talk / Paul Merenbloom

Use Rconsole and take the legwork out of working on the LAN

There is a button pinned to the wall of my friend's office that says, "Only by attempting the absurd can we achieve the impossible." I suspect a LAN administrator wrote this.

With the number of single-server and

multiserver LANs growing, administrators typically have too much to do, too little time, and no room for mistakes. Hence, working smart is just as important as working hard.

Many complex problems can be easily solved with access to the right information. Unfortunately, all too often the key data is locked away in a file server

—usually on another floor or in another building. To find the source (and solution) to the problem, you have to see it firsthand, then shuttle between the user's desk and the file server to test, monitor, tweak, and test again.

Fortunately, NetWare 3.x includes a tool that enables you to view and control the file server's console remotely.

ROONSOLE.EXE and REMOTE.NLM enable authorized users to fully control a file server from any station on the LAN.

Using this tool a LAN administrator can log into a PC adjacent to the user's and concurrently test different scenarios while monitoring information on the file server. In addition to saving trips between the file server and the user's station, this resolves mystery problems in a fraction of the time.

Based on the client/server model, Rconsole has two components: The NLMs (REMOTE.NLM and RSPX.NLM) and a User Agent (ROONSOLE.EXE) executed on a DOS workstation.

All three modules are preloaded by NetWare into the Sys:System directory of the file server.

After executing ROONSOLE.EXE, users are prompted with a list of available servers from which to choose. Following the selection, a virtual connection is established between the workstation and the designated file server.

Any keys pressed on the workstation will appear on both screens and will be treated by the file server as though they had been entered locally.

Rconsole enables the "remote" loading and unloading of any NLMs, switching between active NLMs, and even shutting down the file server (although this is not advisable).

Recognizing the security issues with such a tool, Novell has placed the Rconsole modules in the Sys:System directory. By default, this directory should only be accessible by the supervisor (or equivalent) user.

Although it is tempting for frequent users, ROONSOLE.EXE should not be copied to your Sys:Public directory or other generally accessible areas. This would create a security risk.

Using the syntax "Load Remote <Password> [C/R]" ROONSOLE.EXE users are required to enter an administrator-defined password before gaining access to the file server.

Other than the use of the numeric keypad's plus and minus keys in place of the Alt-Esc sequence used at the console to switch between active NLMs, all other keys work the same on the remote and local consoles.

Although it is a very useful (and powerful) tool, there are a few key rules to follow when using Rconsole.

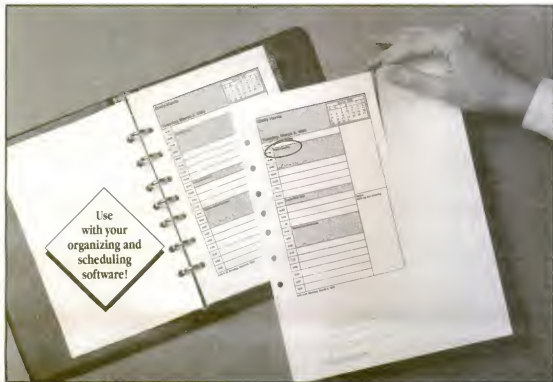
1. Don't leave the safe open. When you are done, exit from Rconsole by pressing Shift-Esc.
2. Change the password used with REMOTE.NLM frequently.
3. Remember, Rconsole generates increased traffic over the LAN (SPX) — another reason to exit from Rconsole when not actively using it.

4. If they are used frequently, add the Remote and RSPX NLMs to the file server's AUTOEXEC.NCF file.

Rconsole is a great addition to your LAN toolbox and can help you to work smart, but remember, like the seat belt in your car, it is only valuable if it is used correctly.

Paul Merenbloom is manager of information technology at Otsuka America Pharmaceuticals, in Rockville, MD. Send comments to him via CompuServe at 70743, 3524 or via MCI Mail at Paul Merenbloom.

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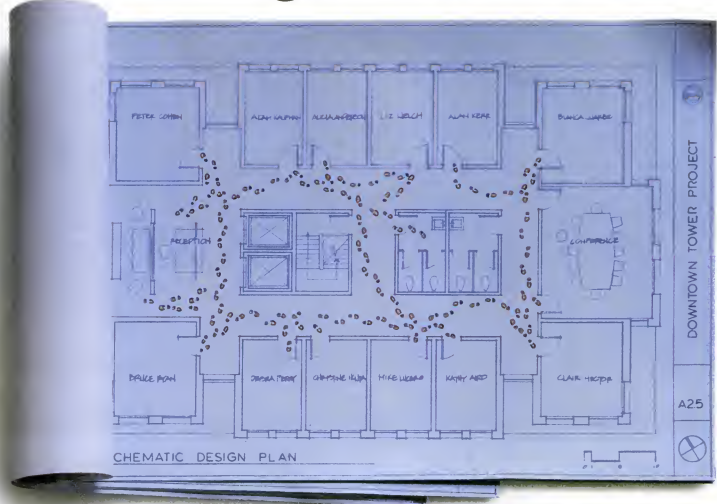
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Circle 10 on Reader Service Card

From the Ether / Bob Metcalfe, Publisher

What's in the future for E-mail? The message is clear

Interop swaggers into San Francisco's Moscone Center this week, and with it comes the Electronic Mail Association, now meeting up on Nob Hill at the Fairmont Hotel. (The EMA can be reached at [703] 875-8620.) Rather than trying to talk a thousand out-of-towners that we don't call it Frisco, I plan to talk about E-mail. You might well think that after 26 years of using E-mail I might be tired of it, but oh no. E-mail is a subject that, like the next Ice Age, has a few good years ahead of it.

The last time I spoke before the EMA some years ago, I snuck onto a panel of the big public dollar-per-message E-mail carriers — CompuServe, GE, MCI, and Sprint — and broke the news (obviously) that my own pitiful little company carried many more messages than these companies did. They didn't think it quite fair and smirked when I admitted that most of our messages traveled only a few hundred feet within a LAN. The panel turned positively ugly when I calculated in front of their customers how each LAN message cost our users far less than a penny.

Then as now, E-mail is booming. LANs have proliferated into the millions — in case you haven't noticed. LAN-based E-mail is now the norm, and E-mail gateways among LANs, mainframes, minicomputers, and the public carriers are now the rage. A gigantic, worldwide electronic mail internetwork is coalescing at a faster and faster pace — right before our eyes. All this is exhilarating to all but the few punctilious



party poopers, despite the disorganization, conflict, and flakiness that accompany the growth of E-mail.

And the exhilaration is exponential. The value of an E-mail system, like that of any interconnected system, grows as the square of those interconnected. (I've left the proof left as an exercise for the reader.)

So, when the last gateway is installed to bring the last PC into a complete worldwide E-mail internet, will we be finished? Nope.

You have probably noticed that while our electronic messages are now coming in greater numbers from more people farther away, each of them still looks like the output from a jammed model 37 teletype circa 1966. A lack of standards has left us with mostly ASCII messages that come with horribly complicated addresses.

It is absolutely clear what to do next. Advance, adopt, and attach standard CCITT X.500 directory services and X.400 message handling systems. No ifs, ands, or buts.

Then, in the context of X.400, escape the limits of ASCII with compound multimedia documents containing forms, voice, images, and — while we're at it — objects. I would be happy just to have my end-of-lines handled properly.

On top of X.500, X.400, and beyond-ASCII message transport, we will layer well-chosen application programmer interfaces to provide platforms for mail-enabled applications: Electronic Data Interchange, workflow, groupware, electronic

publishing — I jump out of my chair just thinking about them.

Of course, as we are finishing all this up — easier said than done — we had better keep our eyes on what is variously called pen-based, wireless, anatomical-feature-top, ubiquitous, and/or mobile computing. Think of how many more people our worldwide E-mail internetwork will have to reach. Then consider how interesting that will become when practically no one is sitting still.

And we will ultimately have to get back to the aforementioned party poopers. It's right to worry some about insuring the reliability, security, and privacy of our E-mail networks as their importance grows. It's inevitable that we will have to worry about who is going to pay for all this — how E-mail carriage will get billed, how investments in E-mail infrastructure will be funded.

I'm one of those who would like these party-pooing problems put on the back burner, or maybe just handled promptly in some of the Interop and EMA sessions I do not plan to attend this week. Just keep me informed.

So that is what I plan to say during Interop and EMA's meetings. Finally, how can we complain anymore about tourists calling it Frisco now that nobody calls it "Baghdad by the Bay"?

Bob Metcalfe is publisher of InfoWorld. He invented Ethernet at Xerox PARC in 1973 and founded 3Com Corp. He receives E-mail via the Internet as Bob_Metcalfe@InfoWorld.com or at 524-1127 on MCI Mail.

Peer to Peer / Jeff DeBalko

There is more than one perfect E-mail package for every network

Jeff DeBalko is director for information systems for InfoWorld Publishing Co.

The search for the perfect E-mail package. This has been my technical passion for the past six months. Every moment that I dedicate to my search makes me more excited. It also makes me more frustrated.

Let me give you a little history of E-mail at InfoWorld. We installed our first PC LAN-based E-mail package about four years ago. Our choice was ccMail. It seemed like a solid choice back then. It met our two basic needs: It existed on both the Macintosh and DOS platforms, and it offered gateways to most major mail systems. I must say, the fact that it was the No. 1 package in market share played a role in my decision as well.

For about three years, ccMail was fine. There were frustrations as time went on, including extremely slow progress in adding features, a very late Windows client, a still nonexistent Windows client, and (amazingly) still no Macintosh remote client. The frustrations started to build.

Then, during the past 18 months, two events changed E-mail life at InfoWorld forever. First, we hired Stewart Alsop as Editor-in-Chief. Then, earlier this year, Bob Metcalfe, inventor of Ethernet, was named Publisher/CEO. These two gen-

tlemen are self-professed E-mail fanatics, and E-mail at InfoWorld went from being a nice way to communicate to a way of life (if not a religion).

Stewart and Bob came from different E-mail worlds. Stewart did most of his work in the Mac environment. Bob came from the world of Unix. Both had very definite ideas about what an E-mail package should be, and ccMail wasn't it. Stewart's needs were rather simple: personal directories, remote access from

This led to another question: Is there a single E-mail package that will address all of these needs?

Well, I have found the answer to both questions is no. But in answering these questions, we have headed on the path to one of our most exciting projects ever. As an IS group, we have a number of "supported" software packages in each category, word processing, spreadsheets, etc. Why should E-mail be any different? It shouldn't. The problem, of

You cannot mandate what your users choose. You must offer a range that meet the needs of novices, power users, and diverse platforms.

a Macintosh, and an AppleLink gateway. Bob's were a little more demanding. In addition to personal directories, he wanted flawless access to the Internet and intelligent mail handling features. Needless to say, ccMail fell well short in all of these areas.

Now, this is not an article meant to bash ccMail. But as an IS director, I was faced with a difficult decision. Do we dump an E-mail package that suits the needs of most to satisfy the power users?

course, is connecting the different products. It can be done, as shown in our recent product analysis of X.400 interoperability, but it is not bulletproof. Our goal now is to evaluate each available E-mail package and decide which will offer the best fit in our enterprise E-mail plan. The evaluation will be based on gateway support and product features that ccMail doesn't offer.

What will be the first addition to our enterprise E-mail system? Right now it

looks like Beyond Mail for Windows. I have been using it for a few months, gatewaying to ccMail via MHS. In my opinion there is no Windows-based E-mail package that even comes close. The interface is the most intuitive and customizable I have ever used. And of course Beyond's claim to fame is its automated mail processing, allowing you to automate the process of sorting, storing, forwarding, and replying to messages. Beyond has also announced the addition of a Mac client based on OCE and a front end for Lotus Notes. If they can deliver these on time, watch out!

The bottom line is that if your network-based organization is not E-mail driven, it should be. E-mail alone, if used properly, can justify the cost of a LAN. However, like other applications, you cannot mandate what your users choose. Instead, you must offer them a range of packages that meet the needs of novices, power users, and diverse platforms. Your success as a new age IS manager depends on this even if you get cut on the edge of E-mail technology.

"Peer to Peer" gives readers a forum for discussing computing and management issues. Send submissions to Rachel Parker, Opinions Editor (MCI Mail 340-4371). Submissions can also be faxed to (415) 358-1269.

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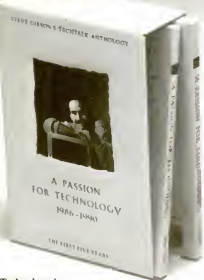
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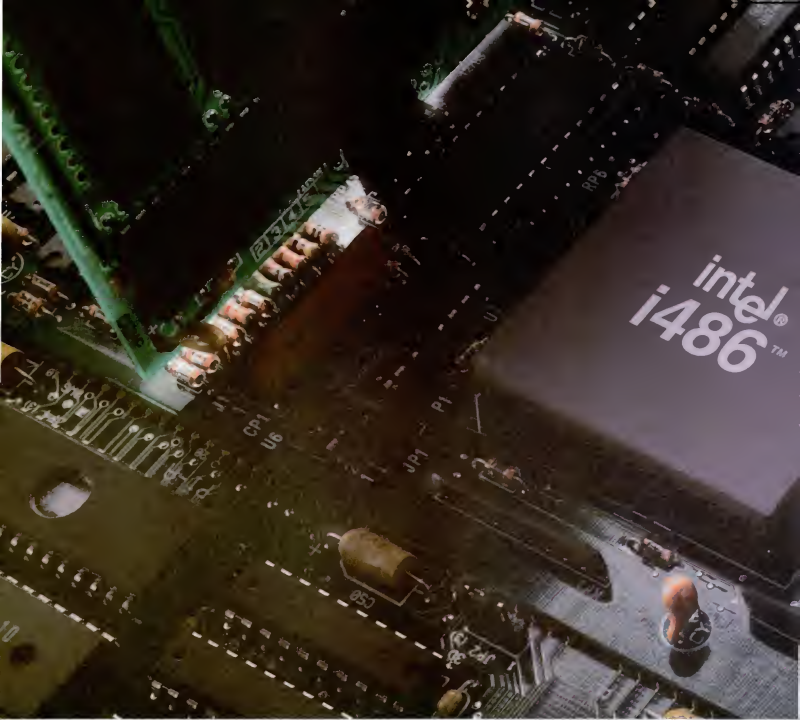
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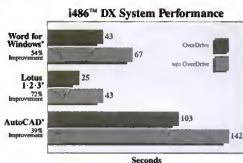
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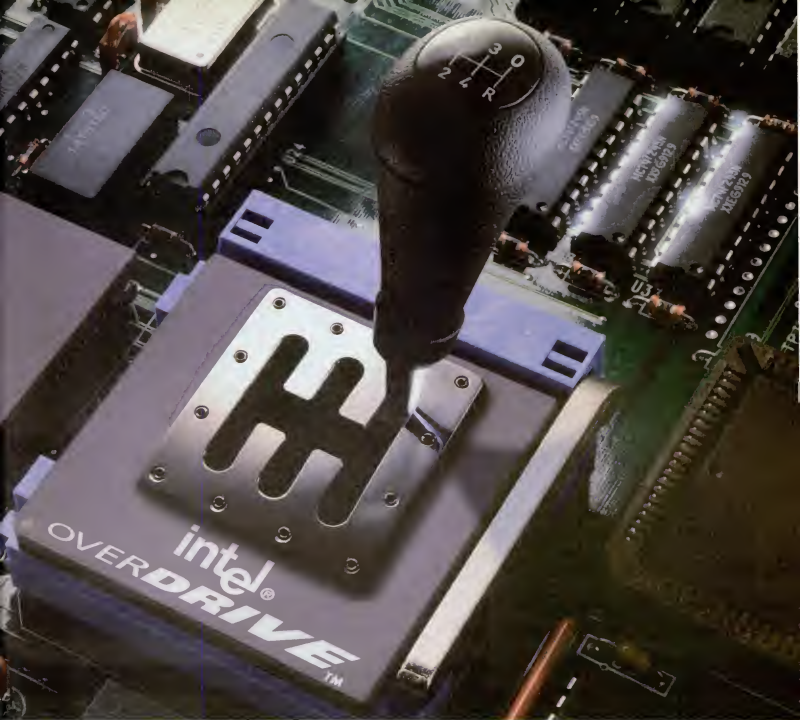
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ENTERPRISE COMPUTING

Windows and TCP/IP tie the knot

A perfect match for LAN users who require enterprisewide information access

By PAUL KORZENIOWSKI

Microcomputers no longer function simply as stand-alone productivity tools. Skyrocketing PC and LAN use have made the microcomputer the portal to enterprise systems.

In growing numbers, companies are turning to TCP/IP to build these enterprise networks, says Charlie Brown, president of Complete Systems Inc., a Chantilly, Va.-based LAN reseller.

And in this brave new world of distributed computing, Windows is increasingly being called upon to put a new face on time-honored TCP/IP packages.

Windows provides TCP/IP users with an iconic system for navigating around an internetwork. With Windows, users no longer need to fumble with cumbersome character-based commands commonly found in Unix versions of these products. In addition, front-end Windows applications such as LAN E-mail packages can be more easily integrated with Windows TCP/IP products using the Windows Dynamic Data Exchange (DDE) protocol.

TCP/IP is not used as a LAN protocol in the PC environment but rather as a means of linking disparate platforms over internetwork and wide-area connections. International Data Corp., a Framingham, Mass., market research firm, estimates that one in every 20 PC LAN users works with TCP/IP. And the PC TCP/IP market is expected to swell to 2.1 million users by the end of this year.

DOS implementations of TCP/IP still dominate the market, and these packages tend to be less mature and feature rich than their Unix counterparts. "Many PC TCP/IP suppliers are shipping half-baked solutions that do not provide users with required functionality," says Carl Beame, president of Beame & Whiteside Software Ltd., a TCP/IP supplier based in Dundas, Ontario.

More than 20 PC applications, such as electronic mail and file transfer programs, have been designed to run on TCP/IP networks. In general, DOS TCP/IP products support a set of basic functions such as file transfer, but they lack sophisticated features such as support for network management and test utilities.

TCP/IP packages tend to be more complex to install and use than other popular PC communications technologies. It is hoped that the marriage of TCP/IP and Windows will lower the threshold to internetworking and give corporate users greater access to enterprisewide information sources.

MARRYING THE OLD WITH THE NEW. The popularity of Windows and network technology is only two years old, and Unix has been around for 20 years, says Dan Geisler, director of marketing at Net-Management Inc., a Cupertino, Calif., supplier of PC TCP/IP software. So it is not



surprising that some esoteric functions are available on Unix but not Windows TCP/IP products.

Despite these limitations, PC LAN users are turning to TCP/IP at a healthy rate. And a number of suppliers are responding with new Windows versions of their products, including Beame & Whiteside; FTP Software Inc. of North Andover, Mass.; Frontier Technologies Corp. of Mequon, Wis.; NetManage Inc.; and The Wollongong Group Inc. of Palo Alto, Calif.

Most LAN vendors realize the benefits of TCP/IP and the increasing market demand for Windows-based packages. Novell Inc., in Provo, Utah, has promised but not yet delivered a Windows version of its Workplace Shell software, which lets PC users run TCP/IP rather than Novell's native Internetwork Packet Exchange (IPX) protocol to access Novell servers over internetwork connections.

A number of TCP/IP suppliers have found ways around DOS's limitation. For instance, Spy Inc., in Seattle, sells AIR for Windows, software that provides NetWare and Windows users with TCP/IP terminal emulation and file-transfer applications.

Competitors do not deem products such as AIR for Windows to be full-fledged Windows packages. These DOS TCP/IP products run as TSR applications and hang around in the background until a user calls a network function. The DOS TCP/IP application then comes up in a DOS window so the user can toggle between the Windows interface and DOS character-based interfaces to send information over a TCP/IP network.

INEVITABLE SHIFT. Analysts expect user and vendor interest to shift away from DOS TCP/IP packages to Windows products. "Sales of Windows have passed the 10 million mark, and this has caught the attention of TCP/IP software vendors," notes Rick Villars, an industry analyst with IDC.

Not surprisingly, vendors are trying to leverage their existing base and add Windows-like functions to their DOS products. In September Beame & Whiteside began shipping a version of its TCP/IP software, dubbed BW-TCP, that lets DOS users drag and drop TCP/IP data while in Windows.

Even though PC TCP/IP products may not yet be on par with Unix versions of

TCP/IP, many users have found packages that meet their requirements. Two years ago, Washington University, in St. Louis, built a student engineering laboratory that connects 32 PCs and 24 Apple Macintoshes to a Sun Microsystems Inc. Unix workstation. "We wanted to provide students with a PC interface because most are familiar with PCs. They find the PC much easier to work with than Unix workstations," notes Dale Frye, PC manager at the university.

After evaluating different products, the university selected Beame & Whiteside software because it was inexpensive and was not copy-protected, Frye says. Initially, the university's PCs ran strictly under DOS, but last year they were upgraded to Windows.

The university is satisfied with Beame & Whiteside software, but Frye recommended one enhancement that stems from the university's specific requirements. "Since more than 1,000 students use our PCs, we cannot assign one to each person," Frye explained. "Instead, users register as they sit down at their machines. We are unable to use the Beame & Whiteside electronic mail application because it assumes that each

Windows adds new face to TCP/IP

- Most PC-based TCP/IP packages on the market run under DOS.
- Windows' popularity is causing more developers to port their DOS-based TCP/IP packages to GUI environment.
- TCP/IP Windows market expected to grow about 15 percent by 1995.
- Windows-based TCP/IP packages give desktop users access to a wide variety of corporate information resources.
- Windows TCP/IP software lets PC users exchange mail and files with Unix, Macintosh, DOS, and Windows users over a variety of LANs and WANs.

user works with his own computer."

DYNAMIC LINKS ESSENTIAL. A few vendors have delivered products that take full advantage of Windows' capabilities. One key ingredient is support for Windows' Dynamic Link Library (DLL) feature, which provides applications with direct access to an ancillary set of Windows functions.

DLLs are an attractive way to add common features to a variety of applications without having to write that functionality into each Windows application. In addition, DLLs only use memory when an application issues calls to them. With DOS applications, once the program is loaded, it remains in memory whether it's being used or not. A DLL is not an application but a set of features used by a Windows application.

Frontier includes DLL support in its Super-TCP for Windows software. One year ago, CompuAdd Corp., a microcomputer manufacturer in Austin, Texas, faced a problem. "We have a number of Unix workstations and PCs running on the LANs and needed soft-

ware users could access on any type of system," explains Will Swearingen, CompuAdd manager for advanced systems engineering, which supports approximately 500 users.

The company evaluated different packages and selected Frontier's software. "Super-TCP presented our users with file names and user addresses in a Windows-like fashion," Swearingen says. "Other products listed information in Unix nomenclature, which many of our users simply do not understand," he says.

A second Super-TCP benefit was support for both TCP/IP and IPX protocols. "Many users access both Unix and Novell servers, so we were happy that one product worked with both protocol stacks," Swearingen says.

AT&T Bell Laboratories Inc., in Midtown, N.J., runs a 60-person TCP/IP network with Unix workstations from various vendors including AT&T and Sun Microsystems Inc. Steven Silberman, a member of the technical staff at AT&T Bell Labs, uses the network to develop materials for employee training programs.

The need for a PC TCP/IP package stemmed from Silberman's desire to work with PC applications. "We found there were more programming tools and better documentation packages available on PCs than there were on Unix workstations," Silberman said.

Also, helping the employees become familiar with Unix is often a difficult task, so Silberman starts students off with Toshiba Inc. laptop computers running Frontier's Super-TCP and eventually migrates them to native Unix machines. "We found that most students have a working knowledge of PCs and respond to it better than if they tried to jump right into Unix," Silberman explained.

AT&T is pleased with the Frontier product, but Silberman asked for one enhancement. The product has only rudimentary Simple Network Management Protocol (SNMP) management capabilities. "We would like to use the

PC to perform network management, because it has a simpler interface than the Unix workstations," he said. "Currently, the PC's network management capabilities are limited."

FILLING A MARKET VOID. NetManage Inc. included DLL support in its Chameleon Windows TCP/IP software. The company is relatively new—formed in 1990—and has focused primarily on filling voids in the Windows and TCP/IP market. "Users will not realize the full advantages of TCP/IP without Windows products," explains Geisler. "DOS was never designed for networking functions and therefore cannot meet the emerging requirements of client/server applications."

NetManage recently demonstrated Chameleon running on Microsoft's forthcoming Windows NT operating system.

In early 1991, Witel, a telecommunications carrier in Tulsa, Okla., searched for a package that would let users operate

the X Windows GUI under Microsoft Windows. Chameleon was the only product that offered that capability, says Michael Thompson, a network development engineer at Witel, which has approximately 100 TCP/IP users who work with a series of LANs from Banyan Systems Inc. Vines and Novell NetWare, supporting 250 employees.

One year ago, Amahl Corp. in Sunnyvale, Calif., needed a Windows TCP/IP package to solve a common problem: providing home users with software that can access the corporate network. Donald Chamberlain, the manager of project support for advanced systems at Amahl, explained that a few hundred engineers use 10Base-T Ethernet LANs running TCP/IP to access information that is stored on Sun workstations.

REMOTE ACCESS. On occasion, employees stay at home and most have PCs rather than Sun workstations sitting on their desks at home. Previously, employees used terminal emulation programs to tinker with corporate information, but this was inefficient because the home computer functioned only as an expensive terminal.

The firm examined different vendors' Windows TCP/IP packages and eventually narrowed its selection to FTP Software's PC/TCP and NetManage's Chameleon because they are easy to install and use.

Since selecting the software, Amahl has realized many benefits. For instance, home workers can access the corporate electronic mail system. "Before, users would have to call coworkers in order to leave messages," Chamberlain says. "Now they can send messages electronically, which is more efficient."

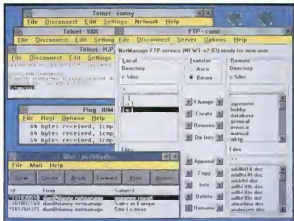
A PC version of Amahl's corporate

documentation tool is compatible with software running on the Sun, so employees no longer have to conduct a series of file conversions to translate information generated at home into formats compatible with the office systems.

FINDING COMMON GROUND. With interest in Windows TCP/IP packages growing, vendors have recently focused on solving outstanding problems. Theoretically, the beauty of TCP/IP is that users with different computers can easily exchange information.

But standards are always open to interpretation, and PC TCP/IP software suppliers have used proprietary techniques to access Windows features. Consequently, a user of Frontier's Super-TCP could not exchange information with a compatriot working with NetManage's Chameleon.

Last fall a group of PC TCP/IP suppliers gathered to resolve the incompatibility problem. A committee consisting of FTP, JSB Computer Systems Ltd., in



Chameleon, a TCP/IP package for Windows users, supports E-mail, file-transfer, and terminal-emulation capabilities.

Cheshire, England; Microsoft; and SunSelect, the communications software division of Sun Microsystems, unveiled in June 1992 Windows Sockets. This is based on the sockets application programming interface for Unix that was developed at the University of California at Berkeley.

Windows Sockets includes extensions to TCP/IP allowing users and vendors to take advantage of Windows-specific functions, such as its multitasking capabilities. Alistair Banks, the manager of connectivity relations at Microsoft, says Windows Sockets operates on any version of Windows, including the upcoming Windows NT.

Last June more than 20 companies, including Beame & Whiteside, Digital Equipment Corp., IBM, Hewlett-Packard Co., and Novell, pledged to incorporate Windows Sockets support in upcoming products.

But the announcement of products represents only one step in the compatibility process. "Vendors still have to conduct interoperability tests to determine the level of compatibility between different Sockets-compliant products," noted NetManage's Geisler. Microsoft's Spider Systems Inc. in Burlington, Mass., have promised to take on the testing process, which is slated to begin this week.

Paul Korzenowski is an Acton, Mass.-based freelance writer specializing in LAN and data communications issues.

TCP/IP software for Windows and DOS

Vendor	Product	Cost
Beame & Whiteside Software Ltd. (416) 765-0822 P.O. Box 8130 Dundas, Ontario, Canada; L9H 5F7	BW-TCP	\$245
FTP Software Inc. (508) 685-4000 2 High St. North Andover, MA; 01845	PC/TCP DOS and Windows with NFS client	\$400
Frontier Technologies (414) 241-4555 10201 North Port Washington Road Mequon, WI; 53092	Super-TCP	\$495
NetManage Inc. (408) 973-7171 20823 Stevens Creek Blvd. Cupertino, CA; 95011	Chameleon	\$400
Spyr Inc. (206) 286-1412 1313 Dexter Ave. N., Suite 150 Seattle, WA; 98109	AIR for Windows	\$995 (for 10 users)

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ENTERPRISE COMPUTING / MANAGEMENT

Messaging wars revisited: standardizing APIs

By DOUG VAN KUK

Application Programming Interfaces (APIs) — the intermediate layer between a program's user interface and the underlying logic that actually handles the data — usually aren't very controversial. But competing attempts by several electronic mail vendors to establish a single, common API for messaging systems has pitted Lotus Development Corp. against Microsoft Corp. and created a swirl of charges, countercharges, and serious mudslinging.

At the center of the dispute are four strategies for standardizing the way E-mail front ends (the PC portion of the E-mail program) communicate with the messaging subsystem, the part of the E-mail program that runs on a server.

The goal: a common API that will allow users to mix and match E-mail front ends while retaining a single message subsystem. A common API will also make it easier for corporate and commercial developers to "mail-enable" their applications so that programs such as spreadsheets and word processors can exchange E-mail directly.

Today the only way to get that kind of functionality is to rewrite the application program or front end for each messaging subsystem. A common API could totally eliminate the need to do this and open the E-mail market to a flurry of new products.

COMMON CURE FOR INCOMPATIBILITY. A common API isn't the cure for all E-mail ills; it does nothing to facilitate the movement of messages from one messaging subsystem to another. Even with

a common API, it will be just as difficult, for example, for a cc-Mail-based system to exchange messages with an X.400-based system. As Arvind Agrawal, Novell Inc.'s vice president of messaging products, points out, APIs don't really help you deploy message-enabled applications when the infrastructure isn't up to the job. APIs only create a link between front-end and back-end processing. Agrawal says.

Still, for many vendors, common APIs are a good start. "We have a tremendous interest in a standard interface," says Chuck Digate, president of Cambridge, Mass.-based Beyond Inc., publisher of Beyond Mail. Currently, Beyond must develop separate mail programs for each messaging system with which it wants to run, such as NetWare MHS, cc-Mail, and Microsoft Mail. Digate explains. With a standard programming interface, the amount of duplicate programming could be greatly reduced.

Commercial developers like Beyond aren't the only organizations with a stake in messaging APIs. Few corporations have homogeneous E-mail environments; individual departments frequently use different E-mail programs depending on their needs. A common API not only makes it easy to develop mail-enabled apps that run on every network, but it protects the investment in existing technology and allows staff to continue using current products while new features are implemented.

Before that can happen, though, E-mail vendors will have to agree on which API to use and what functions it should contain. And this is where the contro-

versy lies. Microsoft is promoting its Messaging API (MAPI) while Lotus and a powerful group of software vendors (that doesn't include Microsoft) have armed themselves with an interface called Vendor-Independent Messaging (VIM). There's also Common Mail Calls (CMC), a standard developed by the X.400 Application Program Interface Association (XAPIA), see "Compromise Reached on VIM, MAPI," (October 19, page 8), a trade group, as well as Apple Computer Inc.'s own Open Collaboration Environment (OCE).

PROTECTING MARKET SHARE. Agreement on this issue isn't likely to happen soon. VIM committee members charge that MAPI is another vehicle in Microsoft's drive toward complete control of PC software. Microsoft counters, claiming VIM is little more than a cartel that deliberately excludes smaller E-mail companies. To make matters worse, companies such as Lotus, Novell, and others are straddling the fence, often participating in several committees. Lotus, for example, has representatives on both VIM and CMC committees and has announced that MAPI support will be included in a future version of Notes.

"Technical issues have nothing to do with the controversy," says Tim Dempsey, manager of developer relations at Lotus and a VIM representative. VIM is a cross-platform specification, he explains, and Microsoft doesn't want to recognize or support other operating systems.

Microsoft's disagreements with Dempsey's assessment. "We felt it was best to work with an industry standards group," explains Susan Fine, Microsoft MAPI product manager. She discounts VIM as a "group of a few vendors. The closest thing to a messaging standards group was the XAPIA." Microsoft will support XAPIA's Common Mail Calls standard when it becomes available, Fine adds.

Neither company is showing its entire hand. A quick look at a list of the vendors lined up behind each standard shows that the only major VIM-compliant product currently available is Lotus' own cc-Mail; Microsoft's MAPI is the only serious MAPI implementation thus far. The drive for standards is as much a drive to preserve market share. As a representative of one of the organizations points out, "No one's being altruistic here; this is about making money."

MICROSOFT MAPI. Microsoft's messaging interface neatly dovetails with the company's overall messaging and operating system strategy. MAPI has two components: the commands themselves and software drivers that perform the translation between MAPI calls and the target message subsystem. Simple MAPI contains basic mail functions, such as sending messages, and is available now. Extended MAPI (scheduled to ship by the end of 1993) will be a more complex set of commands and will include a development kit for writing message handler drivers, so message system developers can add MAPI support to their back-end message systems.

Extended MAPI is designed exclu-

sively for Windows and contains a number of features designed to bolster Microsoft messaging and operating system products. For example, Extended MAPI will contain prebuilt dialog boxes that programmers won't have to handle error or informational messages returned from the message handler.

VIM: INVITATION ONLY. Although the six members of the Vendor-Independent Messaging committee (Lotus, Borland, Novell, IBM, WordPerfect, and Apple) claim they have formed an "open" organization, VIM remains an exclusive club — open by invitation only. This fact has given ammunition to VIM's rivals, most notably Microsoft, which has refused to join despite repeated invitations.

Although the membership of VIM may be open only to the well heeled, the VIM spec itself is available free of charge, though developers will still need to get a toolkit (available from Lotus) to build VIM applications. VIM is a comprehensive specification, with more than 50 messaging commands. VIM has been strongly endorsed by Novell, which says it will include VIM support in future versions of its Message Handling Service (MHS). Novell's messaging system.

CMC: COMMON DENOMINATOR. The X.400 Application Program Interface Association takes the lowest common denominator approach to a universal messaging API. CMC is both platform and transport independent; despite its origins, CMC is not just for X.400 systems. Currently at the proposal stage, Common Mail Calls encompass just three E-mail functions: Send, Retrieve, and Lookup. Like VIM, CMC's implementation will be determined by the vendors using it.

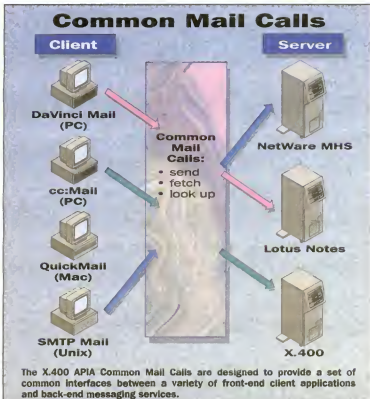
Although CMC has been endorsed by almost every E-mail vendor, it sacrifices functionality for its broad appeal and compatibility across a broad range of platforms. CMC's role is geared toward enabling E-mail functions in applications, as opposed to being an E-mail development environment.

OPEN COLLABORATION. Apple's contribution to the confusion is the Open Collaboration Environment, a rich E-mail standard tailored to provide an interface between System 7 applications and various messaging infrastructures.

OCE's feature set is extensive, including functions to manage mail and directories, authenticate users, and provide digital signatures. In short, it's a comprehensive E-mail development environment.

Apple expects to release OCE sometime in 1993, says Miles Morimoto, OCE product manager, and make it cross-platform in subsequent versions.

MARKETING VS. TECHNOLOGY. The success of any of these standards may depend less on technical issues than on marketing might and posturing. Although differences between the standards exists, they essentially cover similar functions. Fortunately, APIs are not mutually exclusive and can coexist on the same system — even in the same application.



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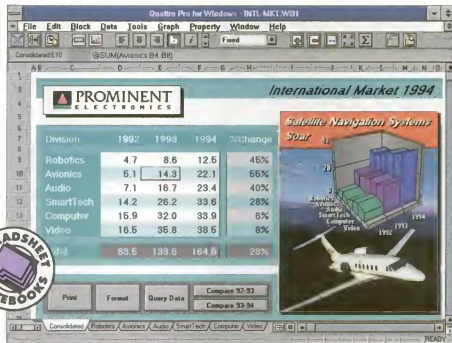
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They do.

Software Digest RATINGS REPORT® The Independent Comparative Ratings Report for Selecting IBM PC Business Software Vol. 9, #6, September 1992	
Advanced Word Processors for Windows	
	Overall Evaluation
1 ST Ami Pro 3.0 for Windows	8.7
2 ND Word for Windows 2.0	8.1
3 RD WordPerfect 5.1 for Windows	6.1

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PC Computing (8/92)

"Ami Pro 3.0 takes the lead over Microsoft Word as the Windows word processor to beat."

InfoWorld (9/29/92)

Lotus Ami Pro 3.0 Word Processor for Windows

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IS Profiles / Alice LaPlante

Automated database strengthens customer support operation

Customer service is becoming the watchword in many IS departments these days.

Vendors and service providers are attempting to distinguish themselves in the tight PC market with exemplary service and support.

But according to many IS managers, the promise of platinum support remains — sadly — little more than lip service.

But when the desire to improve customer service is coupled with canny use of technology, the results can be outstanding.

Just ask Steve Gurklys. Gurklys is technical support manager for Actel, a San Jose, Calif.-based manufacturer of semiconductors and related software.

Gurklys' job is to manage the influx of calls from Actel customers regarding products. Because of Actel's highly technical product line, most customers calling for support have nitty-gritty technical questions.

In fact, most customers are design engineers incorporating Actel semiconductors into their own products. They have rigid development deadlines of their own to meet, so getting their questions answered is a top priority for Gurklys and his staff.

Although Actel and its customers are vendors, the lesson here can easily be applied to IS departments as well.

AUTOMATING SUPPORT. As recently as two years ago, Actel's customer support was a seat-of-the-pants operation: Support personnel were assigned to answer the phones, but no effort was made to track the calls or verify that answers were being provided in a timely manner.

Then a paper-based tracking system was put into place. Support employees filled out a paper form every time they received a call for help. The form had just the bare essentials — caller name, phone number, date, and problem category, Gurklys says.

These forms were filed, and at the end of each month, an administrator would enter the data into a Paradox database. Statistics such as the number of support calls received, type of questions asked, and call frequency were calculated.

Although this method was better than nothing, it was grossly lacking. For one thing, the paper system was inefficient and burdened an already busy staff. Then there was the "interruption" problem. Gurklys had his support employees answering the phone, but not all of them were equally experienced and knowledgeable about the Actel product line.

"Because knowledge is primarily in the heads of our senior people, they are constantly having to step in and help the more junior support employees when a customer calls with a difficult question," Gurklys says.

FORMALIZING THE KNOWLEDGEBASE. In general, Gurklys tried to utilize his more knowledgeable employees for the long-term, strategic issues and tried to assign the inexperienced workers to the short-term, tactical problems. This didn't always work as planned, however, because customers use Actel products in a wide variety of configurations.

Automation was imperative. Gurklys



"We no longer need to ask redundant questions every time a customer calls. . . [It] alleviates the frustration a customer feels."

Steve Gurklys

had some key requirements: a LAN-based system and GUI-based applications — preferably Windows.

Gurklys investigated some of the standard help-desk packages but was less than impressed. These packages tended to be stand-alone and highly proprietary.

Gurklys then heard about a new application under development from a new Mountain View, Calif.-based firm: Proactive Software Inc. Proactive was developing a series of applications specifically addressing customer information resource (CIR) issues.

DATABASE INTEGRATION. The product offered support for virtually all popular relational databases on the market — including Sybase, Informix, and Oracle — and used a client/server architecture. Although the database runs on a Unix workstation, clients can run Windows, X Windows, or Macintosh computers.

Gurklys became a Proactive beta tester for a product called Support Advantage. In exchange for using a prelease — and somewhat buggy — version of Support Advantage, Gurklys received a state-of-the-art system and "enormous help from the Proactive staff," he recalls.

Actel's new Support Advantage is based on Sybase SQL running on a Sun Microsystems Unix server linked to 386-based PCs running Windows 3.1.

Now, when a customer calls, the support rep enters his/her last name into the system and pulls up a complete file on the company, including product configuration and support history.

"We no longer need to ask redundant questions every time a customer calls," Gurklys says. The Support Advantage application is now linked to Actel's order entry system, which is also a Sybase SQL application. When a new customer buys an Actel product the data

is immediately available to the support staff.

Once the caller's identity is established, the support rep enters the customer's problem or question directly into the system. The answer is also recorded.

"This leaves a clear history trail of the support issues facing that customer and alleviates the frustration a customer feels when they talked to someone 10 minutes ago and need to ask a follow-up question," he says.

The system keeps careful track of when, and how, the question was answered: whether on the spot (live), by follow-up call, or by faxing relevant technical data.

"We're trying to improve our statistics and get better at answering questions the first time a customer calls," Gurklys says.

REAL-TIME STATISTICS. Now, instead of having statistics compiled at the end of every month, Gurklys can access the database at any time and get up-to-the-minute data on how well his support team is doing.

If a question is left unresolved at the end of the telephone conversation, a reminder notice is automatically sent to the support rep at periodic intervals until the problem is resolved. "We were very anxious that pending issues didn't get lost in the shuffle," Gurklys says.

Gurklys hired a Sybase SQL expert to do the actual programming for the conversion program that linked the Support Advantage system to other Actel SQL databases. Gurklys had the expert transfer the data stored in the Paradox database over to the new system. Gurklys did all other development work using an object-oriented toolkit provided by Proactive.

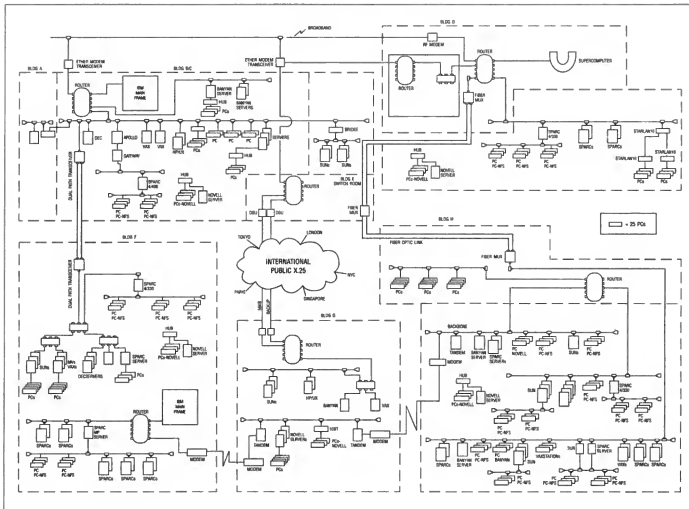
Gurklys also plans to link Support Advantage to a new Sybase database being developed by Actel's software development department to track bugs. Although that is a completely separate system, linking the two applications "should be easy because Support Advantage is built around Sybase standards," Gurklys says. When the two systems are linked, support reps can automatically see if a customer's complaint is related to an acknowledged bug in the software and provide either a fix or a date when a fix will be forthcoming. In addition, "Our support reps will be able to help our programmers spot previously unreported bugs," Gurklys says.

TWEAKING REQUIRED. Gurklys admits some experimentation was needed before the system was put into production: "You have to decide not only on the right database fields, but on the most efficient way to search," he says. "You need to decide when a search capability is important and in what order the search should be initiated. Searching for matches in multiple fields can be a challenge."

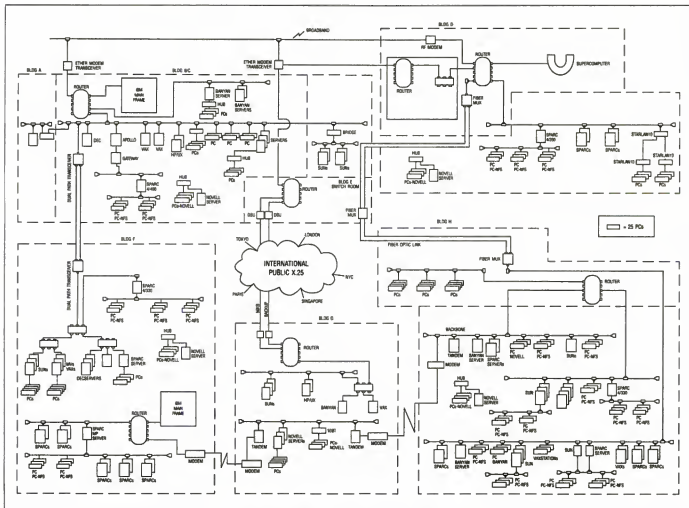
"But I can make changes without bringing the entire application down. My workers never go off-line because I have a fix to make. This is a very flexible system."

Alice LaPlante is a Palo Alto, Calif.-based freelance writer and a former InfoWorld editor.

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REVIEWS / PRODUCT COMPARISON

Drawing conclusions

InfoWorld tests seven packages for Windows and Macintosh and illustrates the differences


BOB ROBERTS/INFORMATION

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for desktop graphics was little competition from PC hardware and software vendors.

Today the PC market is radically different. Microsoft Windows — and fast, inexpensive 486-based PCs that easily drive performance-hungry graphics applications and 24-bit displays — make the PC a serious alternative to the Mac for design professionals. Market research firm International Data Corp. estimates the PC drawing market will grow from \$100 million now to \$250 million by 1995.

This explosive growth is fueled in large part by products in this year's illustration software comparison: Adobe Illustrator and Aldus FreeHand for the Macintosh and Windows; along with three original Windows illustration packages, CorelDraw, Micrografx Draw, and Gold Disk's Professional Draw.

HIGH-END NEEDS. Full-time computer artists pick these applications for their precision drawing tools necessary to create advertising, graphic designs, and technical illustrations. For instance, these users demand ways to align objects easily and automate repetitive tasks, such as duplicating one shape many times around a pivot point.

Because this artwork is usually professionally printed, quality separations for color reproduction are another central requirement. All these programs produce PostScript files that are compatible with service bureaus' high-resolution image setters, though separation options vary widely.

An interesting trend is cross-platform file compatibility. The Windows and Macintosh versions of Illustrator and FreeHand work about the same and use identical file formats. So if you've invested time learning the subtleties of a

complex product such as Illustrator on the Mac, it's easy to transfer that experience to the less-costly PC environment. (In 1993, Corel is expected to release CorelDraw for the Mac.)

Nonartists are probably best served by simpler midrange packages such as Micrografx Draw, Arts & Letters, and Aldus IntelliDraw; yet we're seeing almost equal attention to user interfaces in the high end.

For example, CorelDraw, Professional Draw, and Illustrator incorporate pop-out palettes to modify a drawing tool's operation on the fly. You'll find floating color palettes and style sheets in FreeHand — and unique roll-up menus in CorelDraw. These features, plus the strong on-line help and electronic tutorials, enhance learning and daily productivity.

Additionally, you now draw in preview mode with every PC application, which is an important capability that lets you immediately see how colors interact or verify that an object is filled properly.

You can typically open several windows that show an illustration in different ways — various magnification levels, say. Plus, FreeHand and Illustrator can load multiple files at once.

EVER MORE ENHANCEMENTS. PC illustration programs have undergone fundamental changes in many other areas, too. For instance, CorelDraw 3.0 has abandoned its proprietary font technology and now works with Adobe Type 1 and TrueType fonts. FreeHand, Professional Draw, and Designer all use these standard font types, whereas Illustrator works with Adobe Type 1 fonts.

Vendors continue to improve font capabilities because these packages often replace desktop publishing programs when working on one- or two-page layouts.

All these programs let you enter text directly on the screen and align text along a path. Furthermore, Illustrator and CorelDraw don't convert text to curves first, which makes it easy to edit text once in place. Illustrator has the best tools to fit text within shapes and around objects, followed by CorelDraw's capability to flow text from object to object.

Each package lets you pick from a wide assortment of primitive shapes and Bezier curve editing tools. A new CorelDraw feature lets you place blended objects along a path; when you modify the path, the blend automatically moves with the curve. Also, if you change either of the original blended objects, the program regenerates the blend on the spot.

Adobe Illustrator is the only package that lacks true layering. Layers, analo-

In the 1980s, the Apple Macintosh became synonymous with graphics and type excellence. Its intuitive graphical interface, coupled with software that supported Adobe's PostScript language, yielded output rivaling dedicated graphic workstations. Another factor that established the Mac as the choice

gous to acetate overlays, let you break a complicated illustration into manageable parts by drawing related objects on the same layer. Designer and Professional Draw offer multiple pages within the same document.

For very exact drawing, the programs we tested let you specify grid units and have many types of object alignment options, such as snap-to guidelines. Again, Designer singularly provides dimensioning required by architects or engineers. However, Illustrator's Measure tool lets you record distances precisely, then easily move objects the mea-

In spite of Windows' promise of a seamless operating environment, there's no absolute file standard between applications.

sured distance. Professional Draw's measuring tool is equally handy.

Auto-tracing varies from Adobe's outstanding Streamline, which includes all sorts of color conversion techniques, and CorelTrace, which is also quite adept at handling 24-bit color images, to FreeHand, which provides fine shape tracing but no automatic color selection.

Presently, the Windows versions of Illustrator and FreeHand have more power than their Mac counterparts—but that advantage probably won't last long. Even now the Mac still has the edge in important hardware standards and application integration.

High-performance 24-bit color cards are just now being perfected for Windows—while true-color displays and prepress color calibration systems have been the mainstay of the Macintosh for some time.

Furthermore, in spite of Windows' promise of a seamless operating environment, there's no absolute file standard between applications. True, CorelDraw bundles an impressive number of companion applications, and other programs include charting and slide-show modules. But these don't substitute for the many times when you'll need to enhance illustrations using specialized software utilities.

Each PC program has an assortment of import and export formats. The most common filters read 24-bit color TIFF or PCX files so you can merge photos into your illustrations. And there's usually a number of vector file types to take illustrations to and from CAD or three-dimensional modeling applications. But no program worked perfectly: drawings sometimes required time-consuming touch-up after transfer. These types of problems are virtually unheard of when using a Mac.

When you tally the feature column, PC illustration programs look impressive. And the hardware is fast approaching the level of performance experienced in the Mac-dominated graphics community. Yet there are still subtle differences that will likely endear many graphic professionals to the Macintosh for some time.

Drawing a comparison between color illustration programs

The tests we used for this roundup of drawing software were based primarily on the criteria we developed in our last comparison (June 17, 1991, page 57). We used a drawing created by InfoWorld Art Director Ben Barbante; a version of InfoWorld's Buyers Assurance Seal to which we added color to test additional capabilities. For our speed output we used the same drawing and tested output in black and white and in color.

For benchmarks our PC testing platform was a Compaq Deskpro 386/20c with 9 megabytes of RAM, a 110-megabyte hard disk, an Opta Mon Lisa 24-bit graphics card, and a mouse. We tested the products with Microsoft Windows 3.1 under Microsoft DOS, Version 5.0. Our Macintosh platform was a Ili with 8 megabytes of RAM, a 24-bit video board, and an 80-megabyte hard disk prepared with System 7.0.1.

For the output quality and benchmarks on both platforms, we used the Compaq Pagemark 15 printer with 10 megabytes of memory, running PostScript. The color tests were produced on a QMS ColorScript 100 Model 30 with 8 megabytes of RAM.

PERFORMANCE:

In all the performance categories, there was a base set of requirements for a satisfactory score. To receive higher scores, a product had to incorporate all the features from the lower score in addition to at least one feature from the higher level. For example, to earn a very good, a product



must include all the features required for a satisfactory and a good score and at least one of the features required for very good.

Drawing and editing tools: For a satisfactory score we required products to have line, circle, and square tools; panning and zooming for fine editing; layer assignment; and global editing. A product received a good score if it incorporated all the satisfactory requirements plus one of the following capabilities: freehand Bezier curves, graduated color and gray-scale fills, graphics rotation, or variable-size documents. The features required for a very good score were binding text to graphics, generating color separations, incremental graphics rotation, more than eight levels of graduated fills, or user-defined blends. To score excellent, a product had to have all of the previously mentioned features in addition to 3-D drawing tools, edit fills, or the capability to define on-screen colors to match printed colors.

Text capabilities: To receive a satisfactory score, a product was required to have text placement tools in addition to editable text. To receive a good score, a product had to support capabilities to scale text, distort text, change fonts of selected text, manipulate text outlines, and to wrap text around regular objects. A product was very good if it supported

additional fonts or a bundled font package, text wrap around irregular objects or lines, masked text outlines (using a picture as a fill), linked text flow between objects, or incremental text rotation. To receive an excellent, a product had to support all of the listed features plus the capability to treat text as a graphic object.

Tracing: We required support of tracing features for a satisfactory score. A product received a good if it incorporated an auto-trace tool. We awarded a very good to products that supported accurate, manual tracing. A product was excellent if it also had automatic color assignment from bit maps to vectors.

File import and export: To receive a satisfactory score, we required support of TIFF and EPS imports and exports for the PC, and for PICT and EPS imports and exports on the Mac. We awarded good scores for supporting BMP, WMF, and PCX on the PC; and for MacDraw, MacPaint, and TIFF on the Mac. Products received very good scores if they provided cross-platform support, or if they imported and exported other graphic file formats. Products were excellent if they imported and exported text file formats, or spreadsheet and/or database data.

Speed: We based our speed scores on the results of both on-screen tests and output tests. We used files we had created with the Buyers Assurance Seal, and we timed on-screen activities such as scrolling and redraw. We had two output tests: with the black-and-

See HOW WE TEST, page 92

Executive summary

All these packages have appealing features. Nonetheless, each has a unique character, so you'll likely be able to find the program that best fits your individual working style and output requirements.

CorelDraw is the most familiar Windows program. Version 3.0 introduced several interface innovations that made advanced features a pleasure to use. With high-quality charting, paint, and presentation graphics bundled, Corel Systems positions CorelDraw as an all-in-one separation solution. CorelDraw's illustration module may be slightly less capable than Illustrator for masking and intricate blends. However, the package includes a CD ROM packed with fonts and the largest assortment of clip art, making this application an excellent value.

Aldus FreeHand represents a proven Macintosh offering that has successfully migrated to Windows. You will find FreeHand easier to learn and use compared with Illustrator; drawing layers and style sheets enhance usability further. This program's best-in-class separation capability is very good and more convenient to use than Illustrator's separate printing module.

Aldus Illustrator for the Macintosh



is a traditional favorite around service bureaus and art departments. The Windows version carries forward that reputation while adding welcome features such as preview editing and file portability. However, it is slower and its output quality was not as good as the Macintosh version. Illustrator best balances features and performance; while not the easiest to learn, the program has numerous shortcuts for veteran users. Importantly, output and type quality are outstanding.

Micrografx will have a version of Designer in early 1993 that will compete more closely with the products reviewed here. Currently, Designer works well for

technical drawing thanks to multiple pages, layers, and symbol handling. But the program's interface and tools need work to match the standards set by the other high-end illustration packages.

Professional Draw doesn't have Illustrator's type precision nor its cross-platform versions. Yet the program closely matches CorelDraw's transformations, such as three-dimensional extrusions. Technical illustrators will like the many tool modifiers, multiple pages, and symbols library. Professional Draw wins against CorelDraw 2.0, but CorelDraw 3.0 has a slight edge again.

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Introducing ThinkPad

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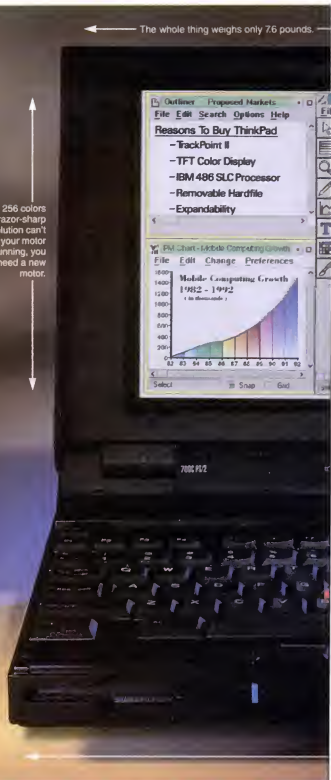
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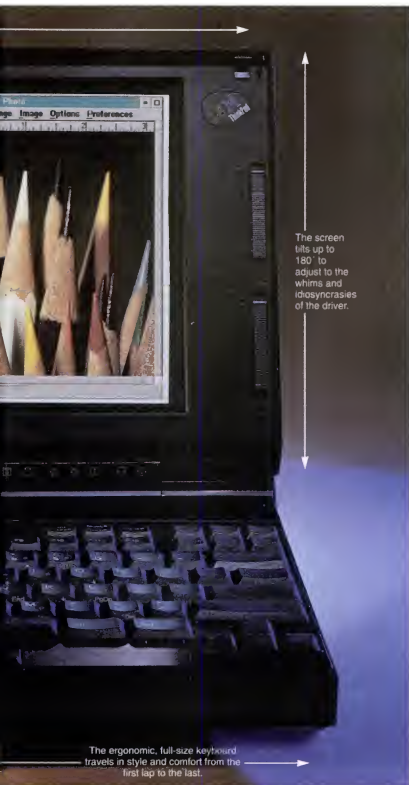
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Weight	7.6 Lbs. with Battery	6.5 Lbs. with Battery
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Adobe Illustrator

Version 4.01 (Windows)

Version 3.2 (Macintosh)

Adobe Systems Inc.'s Illustrator 4.01 for Windows and Illustrator 3.2 for the Macintosh both contain key features, including outstanding Bezier curve editing and charting. On the Windows side, you also get some unique additions, such as preview mode editing.

Both versions of Illustrator ship with Adobe Type Manager and Adobe Separator (a color separation application). The Windows version has the advantage of Adobe Streamline (for tracing), which is a separate application that Mac users must purchase for \$195.

For a more detailed look at Illustrator for Windows' features, see our full review in the June 22 issue (page 127).

Both versions of Illustrator's toolbox contain 40 tool variations that cover most tasks from freehand drawing and object blending to charting. Basic shape tools include rectangle, rounded square, circle, and ellipse. One main difference between the two is that the Mac version lacks the capability to edit in preview mode.

You change how a tool operates using a simple pop-up menu. For example, clicking on the graph tools lets you select a line graph, pie chart, area graph, or scatter diagram. Besides the capability to set tolerances, such as how close nodes are placed on a curve, you can pull horizontal and vertical line guides out from rulers or create a guide from any object. Significantly, you can snap to any control point on an object and add control points to curves, lines, or objects.

Illustrator's hallmark is straightforward Bezier curve creation and editing. The Freehand tool lets you adjust a path while drawing, continue a curve at either endpoint, and modify the curve by moving control points or Bezier handles—all without exiting the basic drawing mode.

Objects can be grouped, locked, or hidden. With the powerful Direct Select and Direct-Open Select tools, you can select and edit objects nested within groups without ungrouping them.

Transformation commands are typical, such as rotation, scale, reflect, and shear. The Transformation Again command lets you automate repetitive processes but doesn't match the robustness of Aldus FreeHand's duplicate commands.

Illustrator lets you specify Pantone spot and process colors or use TrueMatch, Focitone, and Toyo color matching standards. You can also create your own custom palettes, which you have the option of making CMYK based.

Illustrator comes with a basic collection of patterns; you can also create patterns to fill any object or text. Although this is a full-featured product, accomplishing tasks isn't always intuitive and requires more keystrokes than with other products.

Windows Score: Very Good.
Macintosh Score: Very Good.

Both versions include Type Align, and Illustrator's text handling remains the best. The program holds unlimited characters in a text block and imports text from a word processing file. You flow text from one column or shape to another and automatically wrap text around objects. Text can be placed along a curve and moved freely along the path. All editing is WYSIWYG.

On the Mac, the new ATM 2.0.3 is System 7 compatible. It supports PostScript Type 1, TrueType fonts, and 32-bit addressing with Publish and Subscribe.

You define hyphenation and hanging punctuation and perform manual or automatic tracking, kerning, and leading.

Windows Score: Excellent.
Macintosh Score: Excellent

See **ADOBE ILLUSTRATOR**, page 84

Aldus FreeHand

Version 3.1 (Windows)

Version 3.1 (Macintosh)

Aldus FreeHand combines a clean interface with powerful drawing features and built-in prepress color output options. FreeHand is often the choice of business users because of its simplicity, yet the program's drawing flexibility closely matches Adobe Illustrator.

Version 3.1 includes compatibility with Macintosh System 7 and Windows 3.1. New features include a pressure-sensitive freehand tool to create a hand-drawn look, smoother color blends, and several ease-of-use enhancements for editing styles and working with layers.

For a comprehensive look at the program's capabilities, see our full review of FreeHand 3.0 for Windows, February 24, page 63.

FreeHand offers five free-form tools to generate or modify different points, curves, and lines. However, the program provides few basic objects—just rectangle, rounded rectangle, line, and ellipse.

FreeHand has preview and outline drawing modes. In either case, you can backtrack over lines while drawing to make on-the-spot corrections. Later, the Pointer tool lets you alter the shape of the curve by moving control handles. Other editing features straighten paths or restore curves.

From the Layers palette, you can make layers temporarily invisible, lock layers, and rearrange their order to experiment with alternate graphic combinations. Version 3.1 returns elements to their original layers after grouping and ungrouping or copy and paste operations, which saves effort. You also have arbitrary magnification, rather than a few preset values.

The Blend command automatically performs a blend when you change the original objects. Plus, FreeHand's Copy command can be coupled with movement options—a well-implemented, valuable feature if you need to duplicate an object in a circle, for example.

FreeHand includes a variety of grids, rulers, alignment guides, and object distribution options.

The program's transformations—reflect, rotate, scale, and skew—offer some extra touches. You can rotate an element's outline without moving the fill pattern, and you can modify an object using the Point tool or by typing exact coordinates.

You can specify spot and process Pantone color or in percentage. Custom spot colors are available with the alternate RGB and HSL color models.

Objects can contain radial or graduated fills, bit-mapped images, tiled objects, and PostScript fills, such as gravel or brick textures. Most of these options apply to lines, too. You save line and fill characteristics in style sheets for fast application to other objects. Then, if you edit a style, the changes are automatically applied to all objects with the same style.

Windows Score: Very Good.
Macintosh Score: Very Good.

FreeHand 3.1 for Windows lets you add and edit text directly on-screen or in the text dialog box. You can enter text on the path, but you must edit from the dialog box. In the Macintosh version, you must enter and edit all text via a text window. You can use any Adobe Type 1 or TrueType fonts and precisely control the look of text with automatic and custom kerning, letter and word spacing adjustments, and leading changing.

Text can be filled and stroked with any color or pattern. The program provides some unusual text effects—such as zooms, along with shadow and outline treatments—without converting type to objects. Text is easily aligned above, below, or on a path.

Windows Score: Excellent.
Macintosh Score: Very Good.

See **ALDUS FREEHAND**, page 84

CorelDraw

Version 3.0b

CorelDraw 3.0b offers both professional artists and midrange business users the best features of competing products while retaining the simple interface that made CorelDraw 2.0 such a popular product.

Version 3.0b fills practically every gap in the old version. You edit in preview mode, enter text directly in an illustration, use Adobe Type 1 or TrueType fonts, and create multilayer drawings. Furthermore, Corel bundles presentation graphics, hit-map image editing, and charting modes.

A complete review of CorelDraw can be found in the July 13 issue (page 64).

Initially, CorelDraw 3.0b's interface appears the same as before. There is an assortment of reshaping tools and primitive objects, plus a color palette at the bottom of the screen. The outline and fill tools retain their characteristic fly-out menus that let you quickly change the look of a selected object.

Fundamental Bezier curve editing hasn't changed. That is, you can reveal control handles to change an object's outline, join curves, or cut segments without making different menu selections.

However, a new feature fits blended objects to a curve. Then, by adjusting any of the curve's nodes, you quickly change the shape of the whole blend; CorelDraw is the only program with this capability. Like FreeHand, you can edit the shape or color of blended objects, and the program redoes the blend. The new layering feature allows any shape that's drawn on the guideline layer, such as an arc, to work as a guide. Illustrator and CorelDraw stand apart with custom guides, but Illustrator's alignment options are superior. CorelDraw offers unlimited layers, and the stacking order is easily swapped.

A significant interface change involves seven floating "roll-up" menus that you can substitute for many pull-down menus. These windows expand or contract with a mouse click, and when you roll them up, you still can see a title bar of the menu option. These boxes let you easily pick colors, change line weights, edit gradients and patterns, or work with layers.

Besides many PostScript fills that were previously available, you now have a broad choice of color bit-mapped fills. Additionally, the rainbow options let you define multicolor gradients, and images can be imported as fill patterns.

CorelDraw introduced many special effects, such as three-dimensional extrusions, which Version 3.0h builds upon. You can view objects from any angle and set a single light for simple rendering. Illustrator also has shading, yet Corel's elaborate application offers many more chart types that can also be rotated in 3-D space. **Score: Excellent.**

CorelDraw includes 256 TrueType and Type 1 fonts instead of the proprietary WFN-format fonts used before. Text handling is much better, too: Type is entered directly on-screen. The package includes numerous ways to align text to a path, such as vertical skew.

The Fit Text to Path roll-up provides a compass that shows how text will appear on a path. You can even manually kern text on a curve, but there's no automatic kerning, which Illustrator offers. (Corel had the TrueType font pairs kerned automatically in the Microsoft file.)

You can check text spelling, and you will find new hyphenation and column controls. A thesaurus is included. The program still offers interactive letter kerning, word spacing, and line spacing. **Score: Very Good.**

See **CORELDraw**, page 84

PERFORMANCE: DRAWING AND EDITING**PERFORMANCE: TEST CAPABILITIES**

Micrografx Designer

Version 3.1

Designer 3.1 is a fast, precision drawing package. Although it has the same version number, over the last year Micrografx augmented the program with Windows 3.1 compatibility, including Object Linking and Embedding (OLE), TrueType support, an enhanced blend command, and text that can wrap around an object.

You now receive Adobe Type Manager and Adobe Type Align with this package, letting you use and reshape Adobe Type 1 fonts. You receive a total of 175 Type 1 fonts. The Version 3.1 supplement also improves color correction and undercolor removal for separations.

Micrografx will ship an updated 4.0 version of Designer during the first quarter of 1993. According to Micrografx, that release will include increased precision, color separation capabilities, printing performance enhancement, and a streamlined user interface.

PERFORMANCE: DRAWING AND EDITING

Designer's basic tool set includes rectangle, circle, Bezier curves, freehand curves, and lines, as well as many variations, such as ellipse, arc, and polyline. Reshaping curves or objects simply entails adjusting anchor nodes, control points, or Beziers. From menus you can combine curves, cut away parts of a symbol, and group or ungroup objects.

The Blend special effect lets you specify the number of intermediate objects it creates. You can blend objects with gradients, but you cannot blend combined symbols or text. More sophisticated automated effects, such as CorelDraw's Extrude or Perspective are not available, either.

Designer continues its linear, radial, and square color gradients. The versatile Connect Closed command performs masking in one step, compared with the multistep operations some of the other programs require.

Colors are mixed from custom color palettes based on CMYK, RGB, or HSB color models; Pantone colors are available with the extra-cost PMS upgrade (\$99). The program supports 256-color display drivers and will load 24-bit TIFF bit-mapped images.

Line styles are adequate, offering 15 styles that you can combine; you can specify a dotted line 1 inch wide, for example. There are also many line end-cap and joint variations, and calligraphic variable-width lines. However, Designer lacks the capability to make your own line endings, such as unique arrowheads.

Symbols or bit maps act as patterns within another object — and bit-map editing is strong. Yet you won't be able to control how the fill symbol is positioned within the object; Illustrator, for instance, offers several tiling options.

But technical drawing features are still a Designer strong point: a large drawing area (54 pages and 64 drawing layers), automatic dimensioning (with 28 dimension options), part lists (log of symbol IDs), and exact object placement, such as rotation in tenths of degrees. **Score: Good.**

PERFORMANCE: TEXT CAPABILITIES

Though this version lets you place text around the border of a symbol and offers some basic options to place text along the inside or outside of a circle, the other programs handle this requirement much better.

Designer's text ruler lets you adjust margins and indentation. Interactive text editing and kerning demand little effort. Designer mixes fonts, point sizes, and styles within a text block — an unusual feature that Micrografx implements gracefully. A text editor assists in editing text that's rotated or too small to read. You can also edit text directly on a path. Between Designer, Adobe Type Manager, Adobe Type Align, and TrueType support, you have a substantial library of over 180 fonts. Designer converts Adobe fonts to curves, but you can't edit transformed text. **Score: Good.**

See MICROGRAFX DESIGNER, page 85

Professional Draw

Version 1.0

Gold Disk Inc.'s Professional Draw, although relatively new, has strong credentials. Besides a plethora of drawing tools and modifiers, such as fillets and tangents, the program's frame wraps, blends, and three-dimensional effects are aimed right at CorelDraw's users.

For technical illustrations, Professional Draw includes layering, various object and guide snaps, measurement options, and style sheets. Add in preprocess controls and you get a precision package with an intelligent interface — at an affordable price.

Professional Draw's drawing tools include Bezier curves, splines, freehand shapes, rectangles, circles, arcs, polygons — plus many variations, such as a star polygon and grating that other programs can't match. Like Adobe Illustrator, you click on tools to reveal a pop-out menu of options; there are 23 enhanced drawing methods, the most of any program we compared.

Besides the tool palette, there is a secondary menu bar with transformation and editing tools, including rotate, shear, scissors, and skew.

Here you'll also find color and line buttons that bring up individual color palettes or you can pick colors directly from the on-screen color bar. You can create your own color palettes and use any pattern as a fill.

You reshape curves or objects with the Pointer tool and by dragging the mouse. Simply move a curve or spline handle to change the outline. Double-clicking on an anchor handle changes the handle type. Professional Draw also has a freehand Marquee tool for selecting points on irregular shapes. Shear and reflect tasks are done with the mouse or in clear, graphic dialog boxes.

The program's 3-D Extrude and Envelope special effects are patterned after CorelDraw's, including an adjustable light source and complete WYSIWYG display. You can interactively specify the depth of the extruded graphic and text — or create your own distorted envelopes.

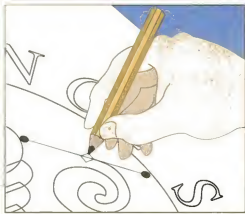
Dynamic connection lines are very helpful when drawing flowcharts or schematics, and you can choose connection lines and corners.

Professional Draw's myriad drawing options extend to replicating objects along a line, grid, or curve. You can blend objects along a curve and generate blends with different spacing between objects. But when you change an object, the blend is not automatically redrawn.

Professional Draw supports Pantone, CMYK, RGB, and HSB color models along with custom color palettes.

Though Professional Draw has an impressive list of features, the implementation of them wasn't as intuitive as CorelDraw or Illustrator. **Score: Very Good.**

See PROFESSIONAL DRAW, page 85



Summary

DRAWING AND EDITING

All packages perform editing in outline mode; all but Illustrator for Macintosh support editing in preview mode. Additionally, each program can combine curves and lines into intricate shapes. Illustrator, Professional Draw, FreeHand, and CorelDraw are pretty evenly matched when editing Bezier curves. Professional Draw and CorelDraw include more automated blends and transformations — and they both stand apart in special effects. Professional Draw offers more basic shapes and modifiers than the other packages; Designer's editing process is the most difficult.

TEXT CAPABILITIES

Not surprisingly, both versions of Illustrator do a great job working with Adobe fonts — from a dedicated tool that adds type to a path to entering text within shapes. Kerning and spacing options also contribute to typehouse-quality output. CorelDraw's text roll-up menu makes aligning text to a shape exceptionally easy; the program also supplies the most typefaces. FreeHand lets you wrap text and manually adjust spacing, but the Mac version lacks the capability to enter text along a path. Designer provides ways to enter text on-screen or through a text editing window. Professional Draw matches many of CorelDraw's effects but is slightly harder to use in this area.

See SUMMARY, page 85

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Adobe Illustrator

(Continued)

The Auto-trace tool lets you control which portions of the image are traced, determine curve smoothness, and generate connected lines even if pixels are missing from the original image.

Adobe Streamline 3.0 provides extra options on the Windows platform for converting bit-mapped images into PostScript line art. Streamline, which can be run from within Illustrator, offers new image processing tools that are organized under an improved user interface. For example, you can convert images according to differences in color and intensity. Streamline's preprocessing tools let you edit bit-mapped images.

Illustrator for the Mac does not have automatic color assignment from bit map to vector. You must assign a fill and stroke to paths that you trace.

Windows Score: Excellent.

Macintosh Score: Very Good.

Aldus FreeHand

(Continued)

PERFORMANCE: TRACING

FreeHand 3.1 traces bit-mapped and vector images, but tracing controls are scarce. There are just two resolution settings (which determine the number of points on the traced path). The other option lets you trace elements on either the foreground or background layers.

FreeHand recognizes color and monochrome bit maps, but only produces an outline of the image (colors and shading are translated when tracing vector-based objects). Because the program offers strong image enhancements, you can change a low-contrast image to black and white, for instance, to improve tracing results. Auto-tracing is easy, but it would be nice to have center-line or outline options and be able to set curve tolerances.

Windows Score: Very Good.

Macintosh Score: Very Good.

CorelDraw

(Continued)

CorelDraw's built-in auto-tracer is sufficient for simple black-and-white images. You can crop, rotate, and skew the original bit map and choose trace sections of the image. The program also offers some tracking options to specify curve smoothness and line weight.

The CorelTrace application creates objects with the same colors or shades of gray present in the bit-mapped image. You select either outline or centerline tracing methods in addition to other parameters, such as line weight. CorelTrace processes partial images and reduces the number of colors or gray levels to eliminate unwanted image details. But it lacks the image processing and fancy manipulation tools of Adobe Streamline. Pictures may be batched for unattended conversion. **Score: Very Good.**

PERFORMANCE: IMPORT AND EXPORT

Popular Windows import formats include CGM, DRW, DXF, Lotus P1, Macintosh PICT, RND, WMF, WPG, CHT, and CH3. You can also place EPS, BMP, PCX, and TIFF directly into an Illustrator file.

Macintosh Illustrator can import EPS files, but you'll need Adobe Streamline to read TIFF, PICT, or MacPaint formats. If you plan to import a file in another Macintosh program, you can save it with a QuickDraw PICT preview.

Adobe Illustrator for Windows lets you export documents in 10 formats: BMP, CGM, DRW, DXF, PCT, PCX, SCID, TIFF, WMF, and WPG. The program also saves files directly in Adobe Illustrator 3.0, Illustrator 88, or Illustrator 1.1 formats. Supported text formats include RTF and ASCII. Illustrator Windows and Mac use the same formats, and they are compatible with all versions of Illustrator on any platform.

Windows Score: Very Good.

Macintosh Score: Satisfactory.

CorelDraw supports 41 file formats. Both CorelDraw and CorelChart import PCX, TIFF, BMP, DXF, EPS, GEM, Lotus PIC, HPGL, CGM, PIF, PCT, WMF, GIF, and TGA.

Output formats include EPS, WMF, PCX, TIFF, DXF, CGM, PIF, GEM, HPGL, AI, PICT, SCODL, WPG, HPB (Adobe Type 1 font), TTF (TrueType font), BMP, GIF, and TGA.

Object Linking and Embedding (OLE) lets you insert objects into CorelDraw illustrations — or place artwork into the charting and presentation modules. When appropriate, as in bit map export, you can specify colors (up to 24-bit) and the number of fountain stripes. Kodak's Photo CD files can also be used in the various modules. **Score: Very Good.**

PERFORMANCE: SPEED

Our performance tests indicated that Illustrator for Windows is a somewhat sluggish performer. Working in preview mode, scrolling our test illustration required 39 seconds. These times are a bit slower than CorelDraw.

The Macintosh version of Illustrator had the fastest file operations. Editing function times were average.

Windows Score: Good.

Macintosh Score: Very Good.

With FreeHand for Windows, screen redraw is respectable under typical working conditions where you don't request the ultimate screen quality. Scrolling of our illustration took 49 seconds. The color printing time was the slowest, at 5 minutes and 46 seconds.

FreeHand outperformed Adobe Illustrator on the Mac with editing redraw functions and color printing, though the program was the second slowest at returning control to the user after color printing. In comparison to the Windows packages, FreeHand was competitive with CorelDraw.

Windows Score: Good.

Macintosh Score: Very Good.

PERFORMANCE: OUTPUT QUALITY

Basic monochrome printing options, such as settings that control Bezier curve quality, are part of Illustrator. The program's manual settings, which control factors such as the number of steps within gradients, yield smooth fill patterns.

Adobe Separator (which ships with both versions) has PostScript Printer Description (PPD) files that are optimized for individual output devices. You also get options to crop artwork, move registration marks, create traps, and convert custom colors to process colors.

With the Windows version, both the monochrome and color test files printed smaller than the other products. The monochrome gradients were a little rough and the grays were a little dark, as with CorelDraw. The color output was fine, though the gradients and lines were a little rough. The Mac monochrome output was smooth with vivid contrasts. Color output was outstanding with sharp lines, smooth text, and smooth gradients. Our color output was clear of moiré patterns and exhibited crisp type along with smooth blends.

Windows Score: Very Good.

Macintosh Score: Excellent.

See ADOBE ILLUSTRATOR, page 86

You specify the overall resolution of your layout to match the printer or photocomposer. After that, each object can have its own traits, such as a coarser screen to exaggerate effects. Images or objects can also be printed using variable dot or line screens — and image enhancement options let you posterize or reverse a scan.

FreeHand 3.1 automatically creates the smoothest possible transition between colors in blended elements based on the current output device. This update also adds better registration marks, plus density and color control strips for color matching.

We easily changed blend steps and set halftone screens, which yielded smooth gradients. The Mac version's monochrome output was top-notch, with smooth lines and text, solid grays, and nice contrasts. The color output was fine, though the blends weren't as dynamic as with Illustrator. Windows monochrome output was strong, though we noticed a dark line down the middle of our test file. The color output wasn't as strong as the Mac version's, but it was still high quality.

Windows Score: Excellent.

Macintosh Score: Excellent.

See ALDUS FREEHAND, page 86

You can set screen angles and frequencies for each process color. However, the pre-established settings for individual printers worked fine. We found little or no moiré patterns.

You can enter color trapping information and specify the number of stripes used in gradients to control banding; with a sufficient number, we saw smooth fountain fills on a high-resolution image setter. But CorelDraw 3.0b doesn't provide the exacting output calibration functions or color separation options of Adobe's Separator program or FreeHand.

Corel's monochrome output was unspectacular. The overall output was dark with little contrast, and there were white lines through the background. The color output produced sharp lines and bright colors, though contrast was one of its weaknesses. **Score: Very Good.**

See CORELDRAW, page 86

Micrografx Designer
(continued)

PERFORMANCE: TRACING

Designer's auto-tracing has a few manual controls. You can select how closely points are spaced — and control smoothness (corner roundness) along with whether tracing produces Bezier curves or polygons (the latter is useful if the original has a lot of straight lines).

But even with these few options, we found that Designer converted color and black-and-white TIFF and PCX files quickly and accurately. You simply touch an object with the auto-trace tool and the program creates a vector symbol that follows even intricate shapes and fine curves. Objects created from color bit maps are automatically filled with the closest color.

Score: Very Good.

Professional Draw
(continued)

Professional Draw has a separate program called PDTrace for TIFF, GIF, PCX, and BMP images. PDTrace is bundled with Professional Draw, and you can access it from the menus or as a stand-alone application.

PDTrace's Batch command converts multiple files unattended. This utility's sparse commands let you select whether the original is line art or dithered (when the bit map has many colors). You also have three choices for how closely you want the bit map to be traced, and there is a set of custom settings to specify what kind of tracing you want.

PDTrace lacks a way to restrict tracing to a section of the image and is missing other fundamental options, such as being able to decide line weight. **Score: Good.**

Summary
(continued)

TRACING

Adobe Streamline, bundled with Illustrator for Windows, clearly offers the most robust tracing facilities. Its preprocessing image enhancing tools, color control, and accuracy features are accessible through an Illustrator-like interface. CorelTrace also gives you a lot of control over tracing as well as color conversion. Illustrator for Mac is strong, though it lacks some of the higher end features that you receive with Streamline.

Designer's built-in tracing also performs color conversion but has limited tolerance settings. Professional Draw and FreeHand have the least capable auto-tracing.

PERFORMANCE: IMPORT AND EXPORT

Designer offers over 30 file formats. Import and export formats include Adobe Illustrator, EPS, and WPG. These supplement DXF, Macintosh PICT, CGM, GEM, PCX, TIFF 5.0, DRW, and ASCII import.

Additionally, a special DRW filter lets PageMaker 4.0 for Windows load any Designer file directly; the print quality is set by Designer, not PageMaker, for better looking output. Designer can import TIFF images that are embedded with EPS files. **Score: Very Good.**

Professional Draw is compatible with major programs, importing files from CorelDraw 2.0, Designer, Illustrator, and Micrografx Charisma. The program also imports EPS, TIFF, PCX, BMP, GIF, WMF, DXF, and CGM files.

You can import AI, EPS, TIFF, PCX, BMP, WMF, DXF, CGM, HPGL, and SCODL graphics formats. We had some difficulty importing Illustrator and Designer files — various layers were missing or unexpected attributes appeared after importing. You cannot edit EPS files; instead a placeholder box appears in the illustration. **Score: Good.**

IMPORT AND EXPORT

Illustrator and FreeHand freely exchange their own files between the Mac and PC. These and the other packages offer a wide range of standard bit-map formats, typically TIFF and PCX, and vector formats, including PostScript (EPS) and DXF for compatibility with CAD and animation packages. CorelDraw and Designer have the most file formats, while Illustrator, Professional Draw, and FreeHand limit import and export to the most popular file types. Adobe Illustrator for the Mac required Streamline to take advantage of more file formats.

PERFORMANCE: SPEED

Designer provides wire-frame or color display modes; all editing features are active with either setting. This version's fast outline fonts, symbol fill, and object masking help you get work done quickly. The optimized performance is reflected in much better screen redraw and scrolling times. Designer had the fastest color printing time, and the monochrome time was second only to CorelDraw. We were unable to time Designer's zoom redraws because we could not specify zoom magnification levels. **Score: Very Good.**

Professional Draw falls in the middle ground of our timing tests, on par with FreeHand and Illustrator, but not as fast as CorelDraw 3.0. As an example, scrolling consumed 28 seconds, and zooming to 100 percent took 37 seconds.

Professional Draw had some problems printing to the QMS ColorScript printer, averaging 11 minutes.

Score: Satisfactory.

SPEED

These programs perform impressively on higher end machines with adequate RAM. CorelDraw and Illustrator lead the pack, while FreeHand, Professional Draw, and Designer required more time in our benchmark tests.

PERFORMANCE: OUTPUT QUALITY

Designer 3.1 includes its own drivers for PostScript printers and the Agfa Matrix film recorder, plus drivers for other popular devices. Batch printing lets you queue multiple files or specific pages of each file and individually specify the number of copies.

The program separates illustrations containing both vector and bit-mapped images; output with scanned images is very clean. Output quality is helped by several options you use to control line screen, process color or dot angles, and color spread. Undercolor removal seems to produce more accurate color separations, though still not as well matched as Adobe Separator, with its highly specialized printer calibration routines.

Monochrome output produced smooth contrasts, but the overall color was quite dark. Color output produced vivid colors and smooth gradients, but the lines were not very sharp. **Score: Good.**

Professional Draw supports spot colors and four-color separations. You globally control overprinting and trapping — and specify halftone settings for individual colors. Other printing options let you create custom crop marks, registration marks, and plate names while setting screens to match the printer's resolution. Additionally, you can compensate for differences between display and printed colors, and adjust color balance, brightness, and contrast of objects. You also can print film as negatives from Professional Draw.

Professional Draw had serious problems printing our color file. Originally, we could not print our drawing at all. We obtained a beta patch from the vendor, which almost enabled us to print the file, but colors turned black at the bottom. The color output was unacceptable. Monochrome output was of fairly high quality, though it did tend to be dark in some areas.

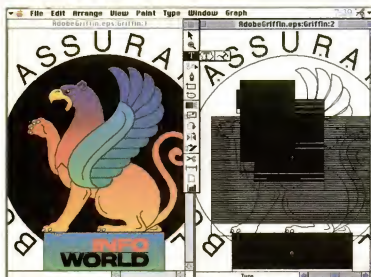
Score: Poor.

OUTPUT QUALITY

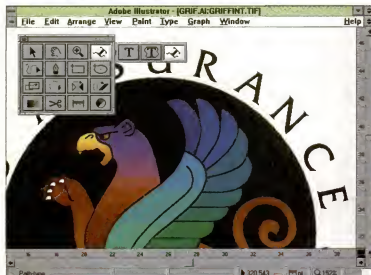
Adobe Separator produces outstanding separations from Illustrator files; this program offers the most control over such critical printing requirements as film density. FreeHand's built-in separation control is in the same league but lacks Separator's fine-tuning options. Professional Draw has special color compensation features.

Designer and CorelDraw won't disappoint you with their printed results, except in the most demanding printing applications. Both Mac packages offer extensive output options.

All packages, save Professional Draw, produced fairly high-quality output. Professional Draw, however, had serious problems printing from the QMS ColorScript.



Supporting powerful WYSIWYG text capabilities, Illustrator for the Macintosh places text along a curve and moves it along a path.



Illustrator for Windows ships with Adobe Type Align and supports manual or automatic tracking, kerning, and leading.



From FreeHand's Macintosh palettes, you can control layers, assign styles, or specify colors from one of several supported color models.



Maintaining consistency with other Aldus packages, FreeHand allows you to keep palettes on your screen for access to capabilities such as layering.

Adobe Illustrator (Continued)

Aldus FreeHand (Continued)

CorelDraw (Continued)

DOCUMENTATION

Illustrator's manuals covered all facets of the main program and bundled applications. The Users' Guide overviews the essential topics, and there is a Color Guide, a quick-reference card, and a booklet for TypeAlign. **Windows Score: Very Good.** **Macintosh Score: Very Good.**

FreeHand includes a getting-started guide, a user manual, a quick-reference card and a helpful on-line disk-based tutorial. Context-sensitive on-line help is available.

Windows Score: Very Good. **Macintosh Score: Very Good.**

Corel Systems redesigned all the documentation to follow their format. Everything is bound in one manageable, well-organized paperback book. It includes a pictorial index of all clip art, a quick-reference booklet, and 1-hour videotape. Version 3.0 includes context-sensitive on-line help. **Score: Excellent.**

EASE OF LEARNING

Windows: Illustrator 4.01 is easier to learn than before but still requires daily use to become proficient. Sample files include bit-mapped templates for auto-trace practice, as well as illustrations you may modify. In addition, there is context-sensitive on-line help available.

The Macintosh version includes sample artwork and template files, but it lacks on-line help.

A status line at the bottom of the screen displays cursor position, selected tools, and related information, helping you recognize tools faster than before.

But experimentation is the only way to master Illustrator's initially awkward drag-and-click sequences needed to perform basic tasks, such as changing from a curve to a line or producing gradients.

Windows Score: Good. **Macintosh Score: Good.**

Because FreeHand for Windows is consistent with other Aldus products, it is easy to move between programs without much extra learning. If you use the Mac version, the transition to Windows is quick and effortless.

However, first-time users will find it takes some practice to get into the rhythm of switching between editing tools. Furthermore, certain basic actions require a keyboard and mouse combination.

The 99-step Undo command erases the last actions, so you can try out different commands without harming your illustration.

A big benefit to FreeHand is that it is fast enough to always run in the preview mode so you get immediate feedback as you make changes.

Windows Score: Very Good. **Macintosh Score: Very Good.**

CorelDraw's model interface has just a few tools to grasp, and their operation is intuitive. In addition, there is an on-line tutorial to help new users. The on-screen status bar and new help menus provide guidance if you get stuck. Furthermore, fly-out menus and roll-ups provide visual clues about complex procedures.

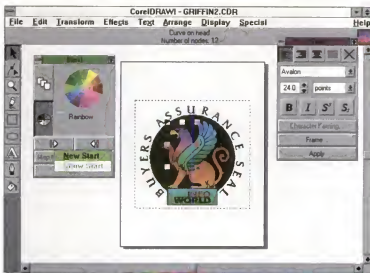
While modules can work independently, they share some common options. But there are enough variations between programs to cause minor frustration. For example, the zoom tool and copy command work differently in CorelDraw and CorelChart.

You can do productive work with any of the applications without a lot of study. But because Corel Systems bundled so many applications together, more consistency among the user interfaces would benefit the user. **Score: Very Good.**

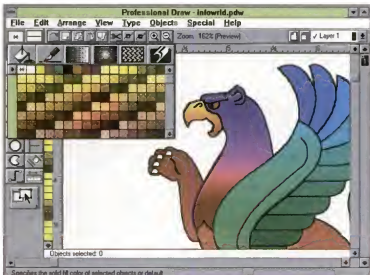
See ADOBE ILLUSTRATOR, page 88

See ALDUS FREEHAND, page 88

See CORELDRAW, page 88



One of CorelDraw's roll-up menus is for blends. CorelDraw also has the capability to specify rainbow blends.



From Professional Draw's tool palette, you can pop out options for your more sophisticated creation or editing needs.



Though you cannot set color fills from the on-screen palette, Designer lets you choose patterned fills from a dialog box.



CorelDraw's roll-up menus allow you to have menu choices available as you create or edit your drawing.

Micrografx Designer

(Continued)

Professional Draw

(Continued)

DOCUMENTATION

Summary

(Continued)

DOCUMENTATION

Designer 3.1 offers a learning guide, reference guide, and quick-reference card. On-line help is available for specific actions. A booklet briefly covers new features, and another small users' guide explains Adobe Type Align and Adobe Type Manager. A training video and workbook are extra-cost options. **Score: Very Good.**

Professional Draw ships with a short tutorial manual, comprehensive users' guide, and catalog of all fonts and clip art. There is also a detailed quick-reference card and quick-start pamphlet. The tutorials give you a feel for most parts of the program. Disk-based tutorials and on-line help are included. **Score: Very Good.**

All programs provide a wealth of learning aids and reference material. CorelDraw provides a training video and a consolidated, very consistent manual that covers all modules. Designer, FreeHand, Professional Draw, and Illustrator provide distinct learning and reference guides.

EASE OF LEARNING

EASE OF LEARNING

Designer's interface, which hasn't changed much since Version 3.0, requires an understanding of several different menus to perform simple editing. For example, you can't set color fills from the toolbox or on-screen palette. Further, several steps are required to edit nodes or reshape Bezier curves, unlike in CorelDraw or Illustrator. Extensive keyboard shortcuts are provided, but they don't always follow a logical pattern. Also, dialog boxes provide few visual hints, so it's hard to understand alignment or gradient features.

Although Professional Draw's interface may seem perplexing, it is easy to become accustomed to it rapidly. The tool palette is clean — you only need to pop out options for more sophisticated drawing needs. You can also hide the Modifier palette until it's required. Segregating editing tools from the drawing palette is a nice touch.

CorelDraw's new roll-ups and preview editing improve an already near-ideal interface. Professional Draw is a complex product, yet its tools are understandable and well organized. FreeHand, while missing some fancy tool modifiers, compensates with style sheets and extensive color palettes. Illustrator takes some time to master because the program has fewer automated tools. Designer also consumes more learning time as you switch between menus and tool palettes.

But the customizable toolbox can be tailored to show just a few basic icons, which cuts the number of options presented while learning Designer. The status display provides a lot of useful information about objects.

Clip-art images are available by symbol ID, making it easier to grab and modify an image. **Score: Good.**

[See MICROGRAFX DESIGNER, page 89](#)

[See PROFESSIONAL DRAW, page 89](#)

[See SUMMARY, page 89](#)

Adobe Illustrator

(Continued)

Aldus FreeHand

(Continued)

CorelDraw

(Continued)

EASE OF USE

Illustrator can produce stunning 3-D objects—but this effect requires several manual steps, while CorelDraw automates the procedure. One benefit of this approach is that you can produce complex color blends, for example, that follow the contour of objects.

Illustrator lets you create intricate cutouts, such as a blended object that might mask part of a background scanned photo. Or you can produce simple transparent type outlines.

The capability to edit in preview mode on the Windows side is a definite plus. With the Macintosh you can open two windows: edit and preview. As you edit, the preview window is automatically updated.

Commands place objects in front of or behind other elements. Also, the Hand tool makes panning more efficient than using scroll bars. But you can't generate named layers or objects—features common to FreeHand, CorelDraw, and Designer.

Illustrator's resizable, pop-out toolbox is handy when screen space is at a premium. But we liked CorelDraw 3.0's floating dialog boxes that remain open on the screen. Also on our wish list is quick access to color palettes, which would also smooth work flow.

You can size shapes to exact dimensions and measure distances between points. As many as 20 open files are immediately available. There are keyboard shortcuts to simplify tasks, and there's a single undo level, but it doesn't apply to every command.

Windows Score: Very Good.

Macintosh Score: Very Good.

SUPPORT POLICIES

Adobe's free, but not toll-free, technical support is from 6 a.m. to 5 p.m. Pacific time, Monday through Thursday, and from 6 a.m. to 2 p.m. on Friday.

The company supports a CompuServe forum, accepts fax inquiries, and offers free product updates for 90 days. **Score: Good.**

Experienced computer artists will find that the various click, drag, and keyboard commands speed work. For instance, you can quickly select several points on various objects.

The snap-to-grid, rulers, and alignment guides help to accurately position drawing elements. Guide lines can be dragged to any place on the page, then locked in place. You can name or rename layers, but there's no way to annotate individual objects or build a custom library of often-used elements. Also, style sheets don't apply to text.

However, Version 3.1 provides a shortcut to edit fill and line attributes directly from the Style palette, and you can specify colors once and save them as a color library for use in other illustrations.

You can rewrap text in a text block by simply changing the dimensions of the box. Other mouse and keyboard sequences quickly stretch or compress type, adjust leading, change letter and word spacing, and kern type. Though both versions offer abundant text features, the Macintosh version has a weakness in that you must enter and edit text in a separate window, not directly on your drawing.

The remaining commands operate much the same. Building a fill pattern, for example, is a simple process of cutting the tile object, selecting the element to be filled, and pasting the tile object inside.

Windows Score: Very Good.

Macintosh Score: Very Good.

TECHNICAL SUPPORT

Aldus' technical support is available from 7 a.m. to 5 p.m. Monday through Friday, Pacific time. You receive 90 days of free support and can then purchase a support contract that provides toll-free hotline help. There's also a 900 number that costs \$15 each time you call.

Score: Satisfactory.

You can arrange roll-up floating palettes anywhere on-screen for instant access. More significant, they truly streamline daily operation. For example, the Fill roll-up's gradient icon lets you specify the gradient angle and even the starting position—with a minimum of mouse clicks. Extrusion, layer, and text roll-ups provide similar benefits.

The layer menu enables you to change the stacking order by merely dragging the layer name to a new position in the list—a far easier process compared with moving objects in front of or behind one another on a one-dimensional drawing page.

Although CorelDraw 3.0 still lacks true masking, complex paths can sometimes replace more time-consuming masking required by other programs.

Yet another factor that speeds work is CorelDraw's large library of symbols, line ends, patterns, and—in the case of CorelChart—predesigned templates and backgrounds. (If you have a CD ROM drive, then all 14,000 clip art images are readily available; 4,000 are available on disk.)

Although we don't rate presentation or paint capabilities in this review, these areas carry forward the same simplified interface of CorelDraw. Specifically, OLE buttons in CorelShow pass you back and forth between applications with hardly any manual intervention. **Score: Very Good.**

Corel Systems offers a 90-day money-back guarantee. Corel technicians, many of whom are multilingual, are available 24 hours a day from 5 a.m. Monday through 5 a.m. Saturday, Eastern time. Furthermore, Corel offers international users support through local phone numbers that feed to the company's Canadian headquarters. On-line help is available on CompuServe. Corel accepts faxed questions and currently supports 60 user groups. **Score: Very Good.**

VALUE

Getting through Adobe's automated phone system is fast. Although we spoke to someone immediately, it required a return phone call to resolve one problem. Other questions were answered immediately. **Score: Very Good.**

We spent some time trying to reach Aldus' technical support. But once we were verified as registered users, the support staff was courteous and answered our questions promptly and completely. **Score: Good.**

Since our initial review, responses to CorelDraw 3.0-specific questions are available on the automated phone response system. But we were connected to the support staff without much wait whenever we needed more clarification about an issue, and the staff helped us resolve difficulties. **Score: Very Good.**

Illustrator for Windows' \$695 price is high but in line with other drawing packages. But Illustrator bundles ATM, Adobe Separator, TypeAlign, Streamline, and additional Adobe Type 1 fonts, increasing its value.

Illustrator for the Mac lists for \$595, as does Aldus FreeHand 3.1. Illustrator offers better text and tracing capabilities, but FreeHand is easier to learn. Illustrator for the Mac does not ship with the \$195 Streamline.

Illustrator Windows lacks some of the deluxe special effects of CorelDraw 3.0 and an extensive collection of symbols and predrawn artwork. Yet, precise text control, unsurpassed color output, and compatibility with Mac and Next Illustrator files are real advantages.

Windows Score: Very Good

Macintosh Score: Very Good.

Aldus FreeHand, at \$595, shines in type handling and color output—and it features a strong set of editing, tracing, and transformation tools, but no fancy special effects.

The program offers numerous fill patterns and options, such as the capability to enter custom PostScript code. Version 3.1 offers some extra shortcuts and print-quality improvements, and the support for pressure-sensitive drawing is a plus.

Windows Score: Very Good.

Macintosh Score: Very Good.

For \$595 (\$149 update cost from Version 2.0; \$249 competitive upgrade), CorelDraw 3.0 clearly sets a new value threshold. Even if you only use a portion of the 256 fonts or 14,000 CD ROM clip art images, you've likely recovered your investment. Add in the paint and charting programs and it's hard to find a more value-laden offering. Each module has a few shortcomings, but except for the most detailed color work, CorelDraw can do the job. **Score: Excellent.**

Micrografix Designer
(Continued)**EASE OF USE**

Designer lets you assign a command or drawing tool to the second mouse button or add extra tools to the drawing palette.

Symbol identifiers help keep track of many objects within complicated drawings. The program's snap-to-grid, ruler, and object alignment features help you accurately position objects. Further, layers can be individually hidden to reduce screen clutter while drawing.

It's easy to reshape any object's curves by clicking on a node or pivot point — but this requires extra time because two separate tools are required.

Although Illustrator offers superb symbol masking, Designer's implementation is easier to use for basic jobs; you simply select the symbol to use as a mask, such as text, and the object to mask, then apply the Mask Symbol command. You can also draw and reshape symbols while in the mask mode.

The SlideShow screen presentation utility provides several simple transitions that let you mix between Designer illustrations and bit-mapped image files from other programs. But there's none of the advanced multimedia support for sound and animation included with CorelDraw. Micrografix continues to include the TeleGrafix communications module for transmitting drawing files to a slide-making service bureau.

Score: Good.

SUPPORT POLICIES

Micrografix provides a 60-day money-back guarantee and unlimited toll-free telephone assistance 24 hours a day Monday through Friday, and between 8 a.m. and 5 p.m. Central time on Saturday and Sunday. The company provides a dedicated BBS and supports Designer through a CompuServe forum. Micrografix also accepts technical inquiries by fax and mail. There's a product-usability warranty plus extra-cost extended technical support service. **Score: Excellent.**

TECHNICAL SUPPORT

Technical support was easy to contact, even at odd hours when you would expect reduced staff. Micrografix's technical people were courteous, informed, and willing to make sure that the problems we posed were solved. **Score: Very Good.**

VALUE

Designer's \$695 costs equals that of Illustrator for Windows, making them the most expensive of the group. Although this version bundles a few useful utilities, the program's essential drawing features now feel a bit stale compared with more recent releases of the other packages.

That's not to say that Designer can't do a respectable job. The blend, text, and editing features perform well, yet are sometimes cumbersome to use. If your main need is technical illustrations, no package has as large of a drawing area or better dimensioning and symbol handling. **Score: Good.**

Company: Micrografix Inc., in Richardson, Texas, can be reached at (800) 733-3729 or (214) 234-1769.

Professional Draw
(Continued)

Professional Draw's multiple drawing features should save you time because you can select the most efficient way to draw. For instance, rather than drawing a circle and then editing the shape, you can pick the right arc, fillet, or ellipse from the start. Likewise, Duplicate, Replicate, and Transformation commands equal the power of the other packages.

There's a strong pattern editor that lets you use any object to fill other shapes; you can also select from predefined patterns. Professional Draw's PostScript fills, patterns, and clip art don't match the number available with CorelDraw; however, you can more easily create and access custom libraries to store symbols and clip art. As many as 10 libraries can be open simultaneously. To use a symbol, just drag it from the library window.

Similarly, style sheets and layers help you organize complicated drawings and make changes. However, the layer manager can't lock individual elements, and alignment capabilities are eclipsed by Illustrator and CorelDraw.

The tear-off color palette lets you change fill and outline colors or make gradient fills, but this palette doesn't store gradients you've made for recall. On the other hand, the Masking feature lets you turn text or graphics into a mask. **Score: Very Good.**

Gold Disk's technical support is available from 9 a.m. to 6 p.m. Eastern time, Monday through Friday. The company strives to answer calls within 2 minutes or will return calls within an hour; if they can't meet this requirement, you receive a \$25 discount on future products. You can also fax technical questions. Gold Disk participates in a CompuServe forum, and the company runs a private BBS. **Score: Good.**

Our calls were always answered immediately, without the need to go through an automated voice mail system — something we didn't find with other vendors. The people we spoke with were friendly, knew the product, and were willing to do extra research to answer our questions. **Score: Excellent.**

At \$495, Professional Draw is the low-cost entry in this category. The program packs a dazzling array of tools, drawing methods, and special effects. This is a fine alternative if you're thinking about Designer because Professional Draw's technical drawing capabilities are superior.

The program is also quite strong for general illustrations and longer documents with its multiple pages. Yet Professional Draw's interface is a step behind CorelDraw 3.0, whereas Illustrator and FreeHand hold the edge in color separations. In addition we experienced severe problems with color printing — we were never able to print our file entirely from the QMS printer. This can be a hindrance for proofing output.

Score: Satisfactory.

Company: Gold Disk Inc., in Mississauga, Ontario, can be reached at (416) 602-4000.

Summary
(Continued)**EASE OF USE**

CorelDraw's roll-ups mask complex tasks. The many modules operate basically the same, and dynamic linking with other Windows applications is very strong. FreeHand is also a pleasure to use, with floating palettes for applying lines, fills, and styles. Professional Draw is much like CorelDraw 2.0 but doesn't quite match Corel's upgraded interface and improved ease of use.

Illustrator takes more effort to do simple things, such as blends; the payoff is a unique capability to handle the most sophisticated requirements, such as masking. Illustrator for the Macintosh, however, is at a disadvantage because it lacks the capability to edit in preview mode. Designer requires multiple steps to accomplish basic drawing; yet technical illustrators may find its layering and symbols an advantage.

SUPPORT POLICIES

Corel and Micrografix are ahead with the longest support hours and most support services. Adobe, Gold Disk, and Aldus provide a good range of technical support hours, CompuServe forums, and corporate services.

TECHNICAL SUPPORT

All the vendors went beyond simply responding to questions. Gold Disk was the easiest to contact, followed by Corel and Micrografix, while Aldus was the most difficult. When we left messages, all vendors returned calls within a reasonable time.

VALUE

CorelDraw, with its multiple modules, CD ROM, and competitive upgrade, is a great value, while Professional Draw is \$100 below several others. Adobe Illustrator bundles a number of important utilities, which makes it a very good value. The Mac version, however, does not ship with Streamline. FreeHand doesn't offer quite as much, but this smooth-working program is also worth the price. Designer now includes Adobe Type Align and Adobe Type Manager, but the higher price and more difficult operation provide a slightly lower value.

Drawing conclusions from the output

Here are samples of the output from the QMS ColorScript Model 90i printer. You'll notice differences between the products in their blends, lines, and text. Designer's output has sharp colors and nice gradients, but the lines aren't as sharp as with CorelDraw, for example.

Professional Draw's printing problem is apparent in this sample. We were unable to print the file correctly in its entirety; the bottom of the griffin is blacked out. In addition to this problem, the output was extremely slow.



Macintosh
Adobe Illustrator, Version 3.2



Macintosh
Aldus FreeHand, Version 3.1



Windows
Adobe Illustrator, Version 3.1



Windows
Aldus FreeHand, Version 3.1



Windows
CorelDraw, Version 3.0b



Windows
Micrografx Designer, Version 3.1



Windows
Professional Draw, Version 1.0

REPORT CARD

INFO
WORLD

Illustration software



	Macintosh			Windows			
	Adobe Illustrator Version 3.2	Aldus FreeHand Version 3.1		Aldus FreeHand Version 3.1	CorelDraw Version 3.0b		
(Weighting)			Adobe Illustrator Version 4.0i			Designer Version 3.1	Professional Draw Version 1.0
Performance							
Drawing and editing tools (125)	Very Good	Very Good	Very Good	Very Good	Excellent	Good	Very Good
Text capabilities (100)	Excellent	Very Good	Excellent	Excellent	Very Good	Good	Very Good
Tracing (50)	Very Good	Very Good	Excellent	Very Good	Very Good	Very Good	Good
Import and export (50)	Satisfactory	Very Good	Very Good	Very Good	Very Good	Very Good	Good
Speed (50)	Very Good	Very Good	Good	Good	Excellent	Very Good	Satisfactory
Output (100)	Excellent	Excellent	Very Good	Excellent	Very Good	Good	Poor
Documentation (100)	Very Good	Very Good	Very Good	Very Good	Excellent	Very Good	Very Good
Ease of learning (100)	Good	Very Good	Good	Very Good	Very Good	Good	Very Good
Ease of use (125)	Very Good	Very Good	Very Good	Very Good	Very Good	Good	Very Good
Support							
Support policies (25)	Good	Satisfactory	Good	Satisfactory	Very Good	Excellent	Good
Technical support (50)	Very Good	Good	Very Good	Good	Very Good	Very Good	Excellent
Value (125)	Very Good	Very Good	Very Good	Very Good	Excellent	Good	Satisfactory
Final score	7.7	7.6	7.6	7.8	8.5	6.7	6.5

GUIDE TO REPORT CARD SCORES

InfoWorld reviews only finished, production versions of products, never beta test versions.

Products receive ratings ranging from unacceptable to excellent in various categories. Scores are derived by multiplying the weighting (in parentheses) of each criterion by its rating, where:

Excellent = 1.0 - Outstanding in all areas.

Very Good = 0.75 - Meets all essential criteria and offers significant advantages.

Good = 0.625 - Meets essential criteria and includes some special features.

Satisfactory = 0.5 - Meets essential criteria.

Poor = 0.25 - Falls short in essential areas.

Unacceptable or N/A = 0.0 - Falls to meet minimum standards or lacks this feature.

Scores are summed, divided by 100, and rounded down to one decimal place to yield the final score out of a maximum possible score of 10 (plus bonus). Products rated within 0.2 points of one another differ little. Weightings represent average relative importance to InfoWorld readers involved in purchasing and using that product category. You can customize the report card to your company's needs by using your own weightings to calculate the final score.

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(What is it?)



It's an SNA gateway. (That's nothing new.) **It's also a local router.** (Excuse me?) **It's an SNA gateway and a local router** (You mean in one product?) **In one product. So it provides you with two solutions in one:** (Let me guess; the functionality of a gateway along with the performance of a router.) **the functionality of a gateway combined with the high-performance of our router's SPARC processor.** (I was close.) **Since this new product** (I think it should be called a gateway-router.) **performs two functions at once, it offers unprecedented levels of administrative convenience and manageability.** (But does it access multiple LANs?) **It also accesses multiple LANs, including Token-Ring, Ethernet, and LocalTalk,** (Ask a stupid question...) **and supports mixed PC environments such as Windows, Mac, and DOS.** (Holy Toledo.) **Naturally, our Netway gateway-router** (Hey, that's my name for it.) **can route Novell IPX and AppleTalk protocols, (And?) and comes complete with powerful 3270 services like terminal and printer emulation.** (I wonder who came up with this thing.) **As you might have guessed by now, the company behind this revolutionary product is Avatar,** (I should have known.) **leaders in SNA connectivity for over a decade.** (Must be about time for the obligatory 800 number.) **For more information, and our free "Gateway-Router Guide to Network Manageability," send in the coupon or call 1-800-AVA-3270.** (A free gateway-router guide? You must have read my mind.)

Avatar

Name _____

Address _____

Company _____

City, State, Zip _____

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HOW WE TEST / from page 77

Drawing a comparison between color illustration programs

white Compaq Pagemark printer and with the QMS ColorScript 100 Model 301.

Output: Products received satisfactory scores for supporting PostScript output devices in 300-dot-per-inch (dpi) resolution and PCL output devices in draft mode, and for printing crop marks. To receive a good, programs were required to support PostScript resolution at 600 dpi or color PostScript output devices, or print selected objects only. Products received a very good if they supported PostScript resolutions higher than 600 dpi or PCL output at 300 dpi with gray scale, or printed color separations. To receive an excellent, products had to be capable of producing prints as film negatives or be capable of print merging with text data. We also evaluated output quality from the Compaq and QMS printers.

DOCUMENTATION:

Scores in this category reflected the quantity and quality of both written and on-line information. Comprehensive, well-organized, and well-written manuals received higher scores. We lowered scores if the manual was poorly organized, lacked information, or contained factual errors in the text.

EASE OF LEARNING:

Ease of learning scores depended on the program's user interface and how intuitive it was. Other factors included the complexity of the program, the quality of documentation and tutorials, and the presence of useful clip art. A program had to be learnable by novices to earn a satisfactory score in this category.

EASE OF USE:

We awarded satisfactory scores to prod-

ucts that used rulers and contained intuitive menu trees and keystroke shortcuts. To receive a good score we required the capability to allow more than one document to be open at a time.

We awarded very good scores to products that used a scroll tool (such as a dragging hand) as well as a scrollbar, a floating tool palette, grids in the background, or let you have multiple versions of the same file open simultaneously. A product received an excellent score if it could manipulate a file that contained more than 10,000 objects. In addition to the features listed, we took into consideration the incorporation of the features and how easy it was to accomplish tasks after a user had learned the product.

SUPPORT:

Support policies: Vendors who offered

unlimited free support for their products received a satisfactory score. We awarded higher scores for toll-free phone support, money-back guarantees, extended support hours, fax support, and BBS support. We subtracted points when vendors provided no free technical support or limited the free support period to 90 days or less.

Technical support: These scores were based on the quality of service we received during several anonymous calls to the vendors, as well as the availability of knowledgeable technicians and the timeliness of their callbacks when we left messages.

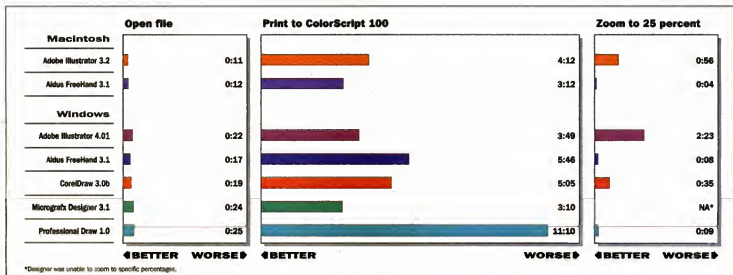
VALUE:

The value score reflected list price vs. performance and features of each package we tested, taking into account the competition.

BENCHMARKS

INFO
WORLD

Illustration software



	Macintosh		Windows		Micrografx Designer		Professional Draw
	Adobe Illustrator Version 3.2	Aldus FreeHand Version 3.1	Adobe Illustrator Version 4.01	Aldus FreeHand Version 3.1	CorelDraw Version 3.0b	Version 3.1	Version 1.0
File operations							
Import TIFF/PICT file	0:03	0:05	0:06	0:06	0:08	0:07	0:06
Save file	0:02	0:02	0:02	0:03	0:04	0:02	0:27
Printing functions							
Print preview	0:17	0:07	0:38	0:16	0:06	0:19	0:40
Ext. print preview	0:03	0:04	0:07	0:03	0:08	0:02	0:05
Print to Compaq Pagemark	1:13	1:39	1:09	02:57	1:04	1:19	0:56
Return control to user	0:57	0:30	0:26	1:42	0:17	0:43	0:11
Return control to user	3:07	1:54	0:27	1:41	0:16	0:37	0:13
Print color separations to file	0:20	0:32	3:48	1:43	0:23	0:32	0:40
Editing functions							
Redraw time (scroll)	0:21	0:11	0:39	0:49	0:07	NA*	0:28
Zoom to 400 percent	0:48	0:16	3:11	3:14	0:33	NA*	2:55
Zoom to 100 percent	0:20	0:08	1:05	0:30	0:17	NA*	0:37

Test times in minutes:seconds.

*Designer was unable to zoom to specific percentages.

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REVIEWS

Two network menuing utilities face off

Saber Menu System counters LAN Tamer's glitz with consistent Windows support

BY MARY CARLETON REVIEW BOARD

In this dual review, we pit two network-aware menuing systems against each other: SoftShell Systems Inc.'s LAN Tamer for DOS and Saber Software Corp.'s Menu System for Windows. Saber offers flexible, customizable menuing tools in a solid Windows interface for DOS and Windows applications. Saber Menu is no slouch, but LAN Tamer offers flashier, dynamic menuing features, such as the capability to replicate user scripts across servers. LAN Tamer, however, doesn't implement its features as smoothly as Saber, nor does it support Windows applications. Saber is best for single-server networks, while LAN Tamer, despite a few inconveniences, works well on multiple-server networks.

We evaluated the packages using the criteria established for our January 20 comparison on network menuing and metering software (page 75), which included Version 1.1 of Saber Menu System for Windows. Because neither product offers metering features, we left that category off our report card for these reviews. (Users can purchase Saber's LAN Administration Architecture starter kit [\$1,195 for 25 users] to add Windows and DOS application metering and auditing capabilities.)

We tested both packages using a Novell NetWare 3.11 server on a multi-protocol development network.

The LAN Tamer review begins on page 96.

SABER MENU SYSTEM Version 2.0

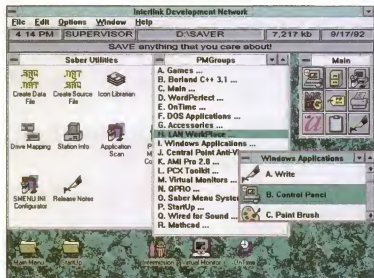
FEATURES:

As with Automated Design Systems' Windows Workstation package (reviewed June 22, page 131), Saber Menu System for Windows provides a network-aware front end for Windows workstations. By replacing the Windows Program Manager with its own SMENU.EXE, Saber not only dramatically increases administrative control over Windows menus and applications, it also enhances end-users' control over their environment. Saber Menu's goal is to allow the administrator to maintain common menus for all network users from one location. It works with Microsoft LAN Manager, DEC Pathworks, and Banyan Vines, as well as NetWare.

Features new to Version 2.0 include the capability for workgroups to own menus, to create personal menus, and to assign icons. In addition, administrators no longer need to create menus from scratch.

A central feature of Saber Menu is its Inman utility, which provides centralized control of all user INI files, including WIN.INI, SYSTEM.INI, and SMENU.INI files. For each INI file, the administrator creates a corresponding DEF file describing any updates. Inman then compares these DEF files to their matching INI files and updates the INI file as necessary.

Inman needs to know where the INI files and WIN.COM are located. To make the best use of the utility, you should store all individual Windows start-up directories in the same relative locations, such as under the user's home directories or always on C:\Windows, so that a batch file with the proper DOS environment variables can find them. Saber recommends that you invoke In-



Saber Menu lets you display submenus in four ways: as a vertical text list, a vertical list of text and icons, a window of icons, and a compressed icon palette.

man in the system log-in script to automatically update users as they log in.

Other features include a network message facility that lets users chat with other individuals and groups. The program also offers the capability to find out such information as shell and IPX version for each workstation and other basic network utilities.

PERFORMANCE:

Menuing capabilities: Even without its network capabilities, Saber Menu replaces Program Manager with a better Windows than Windows. The administrator can choose one of three styles: application mode, in which the main Saber Menu is a window like any other; desktop mode, in which the main Saber Menu replaces the Windows desktop; and Object mode, in which Saber displays only menu icons — command functions pop up whenever you click the appropriate mouse button.

You can display individual submenus within Saber Menu in any of four ways: a vertical text list of applications; a vertical list of icons and text; a window of icons, like the Windows Program Manager; and a compressed palette of icons. You can set each menu or submenu to any of the four formats.

Users can create their own personal menus with the File New command, just as they do in Program Manager. Assuming the administrator grants the privilege, users can also drag and drop icons from network menus onto their own menus and manually specify that Saber Menu add an application to their menu.

As the administrator, you maintain network menus with script files, which you then compile into MENU.DAT files for Saber Menu to run. You can automatically create an initial window, MAIN.MENU.DAT, by scanning drivers for known applications. You can then decompile this DAT file into a SRC source file to edit it. This provides an easy path to bootstrap a new Saber Menu installation.

The administrator needs to maintain only one script file, because you can describe each menu and item within the file in terms of the access rights users and groups have to them, as well as what hardware configuration is needed for particular applications. Menus and/or items will appear on the systems of only those users who have access rights and meet the necessary requirements. The administrator can also restrict access to menus and items according to the time of day.

For those diehards who insist upon running DOS applications from within Windows, Saber provides convenient menu-setup options to create on-the-fly program information files (PIFs) for DOS programs. The user or administrator enters the PIF values once, after which Saber Menu will use them when DOS items execute. It is also easy to set up DOS programs to prompt the user for command-line options, such as the name of a file to open or act upon.

Saber Menu's use of the same script files to describe both DOS and Windows menus makes the program very handy for administrators who support DOS and Windows users.

We found that Saber Menu's interface performed consistently across tasks. The included sample script and the decompiled MAINMENU script provided ample instruction for us to learn how to edit our own script. The only problem we ran

REPORT CARD

INFO WORLD

NETWORK MENUING SOFTWARE

Saber Menu System for Windows

VERSION 2.0

Criterion	(Weighting)	Score
Performance		
Menuing capabilities (400)		Very Good
Security (150)		Very Good
Documentation (75)		Very Good
Installation and setup (100)		Good
Support		
Support policies (75)		Very Good
Technical support (100)		Satisfactory
Value (100)		Good
Final score		7.0

PRODUCT SUMMARY

Company: Saber Software, based in Dallas, can be reached at (800) 338-8754; fax: (214) 361-1882.

List price: Single-user \$89; 10-user \$349; 25-user \$695; 100-user \$2,495; 250-user \$5,995.

Requires: Intel 286 or compatible (386 recommended); Windows 3.0 or later (3.1 recommended); DOS 3.1 or later (5.0 recommended); 1 megabyte of RAM (2 megabytes recommended); 3 megabytes of server disk space.

Pros: Can describe DOS and Windows menus in one script file; capability for users to create personal menus.

Cons: Expensive per-user pricing; tedious setup process.

Summary: Saber Menu delivers a customizable system that grants users the option of modifying their menus while maintaining the network administrator's control over the system.

INSIDE REVIEWS

AcerPower 500/50.....	100
Guide to reviews.....	100

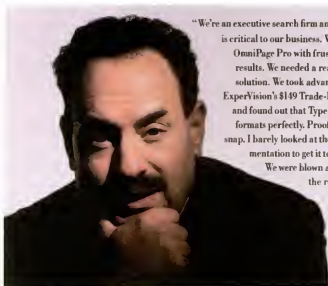
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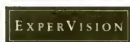
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into was when we inadvertently tried to use drag and drop to move a submenu to a new menu, instead of confining our use of it to copying items. We did not receive an error message, but when we tried to open the submenu, SMenu halted with a general protection fault because the submenu was not in the resulting script file. (A release update, 2.0a, now prevents this problem from occurring, Saber said.) This was the only area in which Saber let us shoot ourselves in the foot. We rate Saber's menuing capabilities very good.

Security: In addition to using the network operating system to handle user security, Saber offers password protection at both the menu and the menu-item level. Users can set and change passwords on their personal menus. The program maintains network-menu passwords in the menu script files. You can also password-protect an included screen saver.

The administrator can also completely restrict access to the Windows File Manager and to the DOS prompt if desired. Security earns a very good score.

DOCUMENTATION:

Saber supplies a users' guide and a language-reference manual. Unlike in the two manuals for LAN Tamer, we were never confused about where to find particular information. We appreciated the plentiful screen shots and judicious use of fonts and type styles, as well as the

expanded number of examples included since Version 1.1.

The index remains simply adequate, but the division of the manual into logical topics makes up for it. We found ourselves relying on the table of contents rather than the index. We rate documentation very good.

INSTALLATION AND SETUP:

Saber Menu is easy to install. In addition to copying the necessary files to the net-

workstation, Saber Menu gave us the option of choosing whether to install them. This seemingly extra step actually saved time, because we found a surprising number of programs on our system that had the same executable names as their more famous brethren. If Saber Menu had automatically installed them, we would have had to go through and manually remove them.

The setup process is not quite so

Windows and DOS into one file, however, helps make setup and maintenance more efficient. Saber Menu earns a good score for installation and setup.

SUPPORT:

Support policies: Saber provides a 60-day money-back guarantee and offers unlimited toll-free technical support from 9 a.m. to 5 p.m. Central time. Support is also available via a 24-hour BBS. Support policies are very good.

Technical support: Saber responded quickly on each of our calls. We were never on hold more than 5 minutes. Although staffers were not always able to answer our questions immediately, they got back to us quickly. We rate technical support satisfactory.

VALUE:

Since Version 1.1, Saber Software has changed its pricing structure from \$495 per server to a per-user fee (single-user, \$89; 10-user, \$349; 25-user, \$695; 100-user, \$2,495; 250-user, \$5,995). This makes it more expensive than LAN Tamer for a single server, and though less expensive than ADS' Windows Workstation, it lacks that program's metering tools. Saber Menu offers strong menuing capabilities, though, in a flexible, customizable interface. If you are maintaining many Windows users or are looking for an integrated solution to LAN administration, Saber Menu should suit you. We rate it a good value.

For those diehards who insist upon running DOS applications in Windows, Saber provides convenient menu-setup options to create on-the-fly program information files.

work or local disk of your choice, the provided install program will also convert current Program Manager groups to a form usable by Saber's SMenu (without destroying the Program Manager groups should you wish to revert to them). Version 2.0 now also edits your WIN.INI and SYSTEM.INI files for you.

The program will also scan available drives for applications to create menus containing any files that it recognizes. We appreciated the fact that rather than

straightforward. To customize Windows, Saber uses a scripting language to describe the windows and menus. The language is tedious but not difficult, and it does let you use a single script to dynamically configure windows and menus for individuals and groups.

Saber Menu does not use the script files directly; instead, it compiles them for greater speed. While not onerous, this makes setup that much longer. The fact that you can combine scripts for

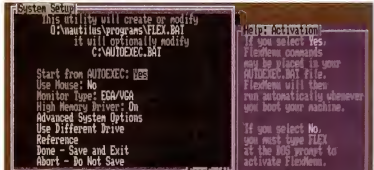
Tamer considers a special case of user—in separate subdirectories to prevent naming conflicts.

To make the process easier, LAN Tamer offers a simple way to clone NetWare users and their rights, properties, menu structures, and log-in scripts across multiple servers simultaneously. Some minor editing is usually all that is then needed to set up the new users for FlexMenu.

LAN Tamer makes a special case for the group "everybody," as if a user belongs to multiple groups, or has his or her own menu structure in addition to that for the group everybody. LAN Tamer will merge the applications from all pertinent groups into one dynamic menu shell that follows the structure and categories laid out for group everybody. This approach is awkward if duplicate applications exist across groups. For example, if both accounting and personnel use WordPerfect, LAN Tamer will generate multiple menu choices for WordPerfect. This does not reduce the usefulness of the dynamic menus, but it does look a bit odd.

FlexMenu adds to the dynamic nature of FlexMenu by letting the administrator consider hardware requirements as well as user and group rights and privileges when constructing menus. If a program requires an EGA or better monitor to run and a workstation sports only a monochrome monitor, then FlexMenu will drop that particular program from the menu appearing on that workstation. Saber Menu also offers this capability, but FlexMenu can look for more variables. You can configure FlexMenu to consider hardware criteria in one of three ways: Don't care; if true; if false; and show only if true.

FlexMenu is organized into a three-tier structure that SoftShell calls its Category-Heading-Program format. Categories (Application, Switch, Utilities, and FlexMenu) appear horizontally



LAN Tamer's FlexMenu program can automatically compile information regarding client hardware settings for a workstation batch file.

LAN TAMER Version 2.2

FEATURES:

A DOS-based network menuing system optimized for NetWare, LAN Tamer will also work with most other networks that support DOS workstations. LAN Tamer is designed to provide dynamic custom menus that change depending on the identification and location of the user. The program also offers basic security and guards against careless user errors.

SoftShell organized LAN Tamer into three main components: a user-interface shell, FlexMenu, that lets the administrator organize and provide controlled access to DOS applications; a LAN executive program (LANexec) to help the administrator create and maintain users and their shells; and a small but useful collection of network tools (Net Tools) to help troubleshoot network and application problems. A batch programming language, Nautilus, lets you invoke sophisticated batch programs from the menu items. (Nautilus is a superset of DOS Batch).

In a future release SoftShell plans to include a network inventory utility to scan users' log-in scripts and LAN Tamer data files to create a database of user configurations over all network servers. The company also is working on a version of the package that will support Windows applications and offer a Windows interface. Both these enhancements are due out by the end of this quarter.

PERFORMANCE:

FlexMenu's ambitious undertaking with many unique and useful features. You should maintain menus for individual users and for groups — which LAN

across the top of the screen. As you highlight each one, a vertical menu of category headings appears underneath the main category entry. As you move the cursor vertically on these heading menus, a second vertical program-specific menu appears to the left.

For all the truly useful things FlexMenu does, its interface initially frustrated us. It offers no cursor per se; instead, the currently highlighted field moves with arrow or mouse use. This is very awkward with a mouse. For example, you can pull down some menus but not select items from those menus with a mouse.

As the cursor is moved to the top category line, the header menus jump down to the center of the screen, separate from the category titles, enabling the cursor to move directly from category to

category without going through both the header and program menus en route. As the cursor is moved down, the separated header menus reattach themselves to the category line, and the cursor must pass through each submenu on its quest to move left or right. There are plenty of hotkeys and shortcuts to circumvent this menu manipulation, but it takes time to learn them.

Handy features supported by FlexMenu that do not normally come with DOS include a file manager and a tree manager that rival those in Central Point's PC Tools. They have the same FlexMenu user interface that mouse users will come to dislike but are otherwise quite comprehensive. For example, the file manager not only handles standard Copy, Move, and Delete commands, it can also automatically search

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CODE I4632

across multiple drives and directories to find files. In addition, it can use your word processor's capability to store non-printing comments to attach 60-character "long names" to files, and it can globally change file attributes within a directory. The tree manager will optionally show not only directory structures but how much disk space a directory and its subdirectories consume.

The first category, Applications, holds such programs as word processors and spreadsheets, databases, and graphics programs. The second category, Switch, is a task switcher (familiar to those of you who haunt the BBSeS as SWITCH.COM) that essentially converts all applications into TSRs, which FlexMenu will swap in and out of memory as needed. At start-up, FlexMenu loads all applications inserted into the Switch menu and then swaps them out until they are called for. By default LAN Tamer will put databases, spreadsheets, and communications programs under Switch. We added a small text editor to the category of Switch Other. The third category, Utilities, is reserved for utilities, including most common DOS commands.

Users can access programs that are not on one of the menus by a DOS command line at the bottom of the screen. The administrator can disable the command line to force users to rely on the menus. You can also reassign function keys to provide single-key access to common functions and programs.

We commend LAN Tamer for the scope of its menuing capabilities, but on occasion the program does not operate smoothly. For example, the doubling up of menu entries from different groups is clearly an expedient work-around that should not have made it to the final product. On the other hand, no other product we've examined matches its particular set of capabilities, especially for multiserver networks. We rate menuing capabilities very good.

Security: FlexMenu, like most other network management programs, uses

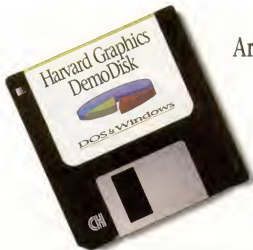
the network operating system's security to prevent unauthorized access to files and applications.

In addition, the administrator can add the SECURE.DRV device driver to a workstation's CONFIG.SYS to disable all keyboard input until the user invokes FlexMenu. This, combined with the capability to disable selected commands within FlexMenu, including the DOS command line, gives the administrator almost complete control over users' workstation environments. This method will not deter a determined hacker, but

it can prevent most of the careless mistakes that usually cause network disasters. FlexMenu also offers a password-protected screen saver. Security merits a very good score.

DOCUMENTATION:

LAN Tamer comes with an administrator's guide and a FlexMenu reference guide bound into a single book. Each guide has its own table of contents, index, and page numbering. SoftShell also includes a guide with helpful hints for FlexMenu's common functions.



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REPORT CARD **INFO WORLD**

NETWORK MENUING SOFTWARE **LAN Tamer**

VERSION 2.2



Criterion	(Weighting)	Score
Performance		
Menuing capabilities	(400)	Very Good
Security	(150)	Very Good
Documentation		
	(75)	Good
Installation and setup		
	(100)	Satisfactory
Support		
Support policies	(75)	Excellent
Technical support	(100)	Very Good
Value	(100)	Satisfactory
Final score		7.0

PRODUCT SUMMARY

Company: SoftShell Systems Inc. is based in Palo Alto, Calif., and can be reached at (800) 322-7638 or (415) 424-0900; fax: (415) 424-0743.

List price: Single server, unlimited users, \$295; multiple servers, three users, \$395; up to 100 additional users, \$19.95 each.

Requires: DOS 3.x or later; 36K of high or low memory (0.5K when swapped out); 1.6 megabytes of server disk space.

Pros: Capability to merge applications into a dynamic menu for group "everybody"; capability to replicate user scripts and menus.

Cons: Duplicate menu entries for merged groups; awkward to use with mouse; does not support Windows applications.

Summary: Despite a few inconveniences, LAN Tamer offers administrators a broad array of menuing tools that should prove particularly helpful in multiserver networks.

Documentation of new features that have not yet found their way into the manuals is provided as a series of chronologically ordered Tech Notes in a stapled sheaf of 8½-by-11-inch pages. The manuals are fairly complete, but the lack of a summary for the Tech Notes made it awkward to find information in them.

SoftShell makes fine use of fonts and type styles to differentiate between usage notes, examples, and user keystrokes. The usage notes are especially helpful in pointing out common pitfalls as well as shortcuts. We also appreciated

the mini-tutorials.

The only topic that is sketchily covered is the Nautilus batch language. SoftShell provides enough information to let you use Nautilus to run DOS batch files from within FlexMenu, but to make full use of its capabilities you must purchase the Nautilus Programming Package, a separate product.

SoftShell supplies adequate context-sensitive on-line help. This plus a basic glossary of computer and LAN Tamer terms earns LAN Tamer's documentation a good score.

INSTALLATION AND SETUP:

LAN Tamer's installation was a little too helpful. As with Saber Menu System for Windows, LAN Tamer provides a single installation program that copies all necessary files, creates all needed directories, and installs all "recognized" applications. Unfortunately, we found a significant number of these recognized applications were actually other unrelated programs with executables whose names misled the installer program. We had to delete these false entries individually and re-enter them manually with

their proper names and categories.

You can set up custom menus in FlexMenu by pointing and clicking. You don't need to contend with a scripting language like Saber Menu's. The menus themselves are not dynamic, but they are tailored individually to a user or a group and then merged as appropriate. This does have the unfortunate effect of duplicating menu entries that exist for more than one group, or for both the user and one or more of their groups.

LAN Tamer uses DOS environment variables to determine what menus to use and what hardware is available. LAN Tamer can use wild cards to determine user and group names directly from NetWare, letting users log in from any workstation, but you must insert settings for such hardware as mouse type into each workstation's AUTOEXEC.BAT.

On non-NetWare networks, you must maintain all environment variables on each workstation, using different batch files to allow different users to use the same workstation. This contrasts sharply with Saber's scripting method, in which you need only one script to service everybody.

LAN Tamer's saving grace is its capability to clone current menus and user scripts (for NetWare as well as LAN Tamer users) when only minor or no modifications are needed. On NetWare, this cloning includes all of NetWare's bindery information covering groups and file access privileges.

LAN Tamer eases setup for multiple servers via a group edit utility that combines identically named groups across servers into one server group that LAN Tamer can treat as if it were one group on one server. This utility assumes that file structures across the multiple hosts are consistent. We rate installation and setup satisfactory.

SUPPORT:

Support policies: SoftShell provides toll-free support from 7:30 a.m. to 5 p.m. Pacific time and a 60-day money-back guarantee. Support is also available by fax and a company BBS. Support policies are excellent.

Technical support: Our calls were answered promptly by courteous technicians. If a staffer did not know the answer to our question, we were transferred to someone more knowledgeable. When we did have to leave a message, our calls were returned within 10 minutes. We rate technical support very good.

VALUE:

LAN Tamer is an ambitious package that has a few rough patches. Its \$295 price for one server and an unlimited number of users is very reasonable. On multiple server networks, however, for which LAN Tamer is optimized, its price is right up there with those of Saber Menu and ADS' Windows Workstation. (For multiple servers and three users, LAN Tamer lists for \$395; up to 100 additional users are priced at \$19.95 each.)

Saber provides a more consistent interface, and Windows Workstation offers the advantage of metering tools. Both Saber and Windows Workstation support Windows applications as well, while LAN Tamer works only with DOS applications. We rate LAN Tamer's value satisfactory.

Mary Carleton is a member of InterLink, an international consortium of network consultants.

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SRC SOFTWARE PUBLISHING



Acer 486/50 proves fast performer

High-end AcerPower processor carries top-of-the-heap price tag

BY EARL ANGUS TECHNICAL ANALYST
AND SHOSHAN NASH
ASSISTANT REVIEWS EDITOR

Intel's release of the 66-MHz 486DX2 clock-doubling chip, has overshadowed in many ways the 486/50 CPU. However, we've found the average 50-MHz 486 system to still be faster, albeit not by a large margin. (See Dell 466DE review, October 5, page 77.)

REPORT CARD

INFO
WORLD

50-MHz EISA 486 COMPUTER

AcerPower 500/50



Criteria	(Weighting)	Score
Performance		
SYSMARK92	(250)	Very Good
Multitasking	(125)	Very Good
Compatibility	(150)	Excellent
Expandability	(75)	Good
Four 32-bit slots and two drive bays open after configuration.		
Documentation	(50)	Good
Step-by-step instructions; detailed illustrations.		
Setup	(75)	Very Good
ROM-based setup with EISA configuration utility on disc.		
Serviceability		
System design	(50)	Good
AT-style case; fan, heat sink for cooling CPU and components.		
Support policies	(50)	Excellent
One-year warranty; toll-free line; BIOS; extended hours.		
Technical support	(75)	Satisfactory
Score based on reader survey.		
Value	(100)	Good
Final score		7.4

PRODUCT SUMMARY

Company: Acer America Corp., based in San Jose, Calif., can be reached at (800) SEE-ACER.

List price: \$5,995; sold through dealer channels.

Features: 50-MHz 80486DX CPU; two serial, one parallel, one mouse ports; 200-watt power supply.

Peripherals: Enhanced keyboard; ATI Graphics Ultra VGA board.
Storage and memory: 496-megabyte Fujitsu hard disk with SCSI controller; 1.4-megabyte 3½-inch floppy drive; 8 megabytes of 80-nanosecond RAM, 256 megabytes maximum; 256K maximum external RAM cache.
Pros: Fast performer; easy setup.

Cons: Relatively expensive.

Summary: The AcerPower 500/50 is one of the fastest 50-MHz 486 systems we've tested to date, but it also carries one of the highest price tags. However, this unit will serve your high-end processing needs well.

Here we review Acer America Corp.'s 486/50 machine, the AcerPower 500/50. It proved to be one of the fastest in its class that we've evaluated, but it also carried one of the heaviest prices at \$5,995. Overall, the AcerPower 500/50 is a fine machine for high-end processing if your need for speed is greater than your need for saving money.

We tested the AcerPower 500/50 with 8 megabytes of RAM and a 496-megabyte hard drive with a 4-megabyte disk cache. This system posted a SYSMARK-92 rate of 148.60, performing 9 percent slower than the Tangent 450E (also with 4 megabytes of disk cache), which was the fastest system in its class in our comparison of 486/50 PCs (see June 29, page 58). But the AcerPower 500/50 was faster than the average 50-MHz 486.

In multitasking tests, Acer was again slower than Tangent, this time by 19 percent. The AcerPower was 7 percent faster than the average 486/50.

This system supports as much as 256 megabytes of system RAM, with 256K

The AcerPower 500/50 is fine for high-end processing if you need speed more than low price.

maximum external cache. Maximum memory supported on the motherboard is 128 megabytes, with the other 128 megabytes supported on an expansion card. The AcerPower 500/50 includes six 32-bit slots of which four remained open after configuration. There are also three 5¼-inch external and one 3½-inch internal drive bays. We had two drive bays remaining after configuration.

The documentation provided with the AcerPower consisted of a collection of OEM manuals, a Microsoft DOS manual, a diagnostic and utilities guide, a CPU guide, and a system guide. The system guide was adequately detailed, with such information as the system and BIOS setup, and configuring and installation options. The manual offers step-by-step instructions accompanied by illustrations. There is also a problem-solving section, which should prove useful to novice users. The system guide



and diagnostic and utilities guide include an appendix, table of contents, and index but no glossary.

We encountered no problems setting up the AcerPower 500/50. Because this system has an EISA bus architecture, setup is ROM-based with an EISA configuration utility on disk. However, adding memory to the system is a bit difficult. We had to unscrew the proprietary memory card to access the SIMM sockets on the motherboard.

The BIOS setup utility is composed of two parts. The system configuration setup lets you change the screen color and enable a screen-saver utility, in addition to the standard setup utilities. The system security setup includes features for preventing unauthorized access to system data. There is a drive control feature for enabling or disabling read/write functions of a particular disk. In addition, a virus control feature detects some viruses from attaching to boot sectors of floppy and hard drives.

The AcerPower 500/50 has an AT-style case. Although there is no case lock, you can enable a keyboard lock and password option during setup. You can only install five full-length EISA expansion cards. Because one slot is vertically aligned, you can only fit a half-length card into the sixth slot. This system also includes one fan for cooling the components. In addition, there is a heat sink on top of the processor. We found no patches on the motherboard, but there were some on the processor card.

Acer offers a one-year parts-and-labor warranty. It offers neither free on-site service or a money-back guarantee. However, there is a toll-free line and BBS and fax support. Technical support is available weekdays from 7 a.m. to 7 p.m. and Saturdays 7 a.m. to 4 p.m., Pacific time.

InfoWorld guide to reviews

REVIEW SCORING

InfoWorld reviews only finished, production versions of products, never beta-test versions.

Products receive ratings ranging from unacceptable to excellent in various categories. Scores are derived by multiplying the weighting (in parentheses) of each criterion by its rating, where:

Excellent = 1.0 — Outstanding in all areas.

Very Good = 0.75 — Meets all essential criteria and offers significant improvements. **Good = 0.625** — Meets essential criteria and includes some special features.

Satisfactory = 0.5 — Meets essential criteria.

Poor = 0.25 — Falls short in essential areas.

Unacceptable or N/A = 0.0 — Fails to meet minimum standards or lacks this feature.

Scores are summed, divided by 100, and rounded down to one decimal place to yield the final score out of a maximum possible score of 10 (plus bonus). Products rated within 0.2 points of one another differ little. Weightings represent average relative importance to InfoWorld readers involved in purchasing and using that product category.

You can customize the report card to your company's needs by using your own weightings to calculate the final score. Average score for all products reviewed in 1991: 6.9.

INDEXES

Indexes appear in the first issues of January, April, July, and October. For back issues, specify dates and send \$6 per issue to InfoWorld Customer Service, P.O. Box 3014, Northbrook, IL 60065. Please allow six weeks for delivery.

REVIEWS POLICY

InfoWorld publishes in-depth reviews and product comparisons of approximately 1,000 microcomputer products each year that we judge to be important, interesting, and useful to our readers. To submit a product for review consideration, send product announcements, marketing materials, demos, or advertising copy describing the product to Reviews Editor, InfoWorld, 155 Boveet Road, San Mateo, CA 94402. (Send news and new product announcements separately to News Editor.) Please do not send hardware. Unsolicited materials are not returned.

The editorial review board selects products for review for each cycle. If your product is selected, you will be contacted to arrange shipment of the product for review. We request that you send all software; we return hardware, but not software, after review.

Because of the volume of submissions, we regret we are unable to contact vendors regarding products not selected for review.

APPLICATIONS TESTS

50-MHz 486 computers

	Acer AcerPower 500/50	Tangent 450E	Average 486/50
Performance tests			
SYSMARK92	148.60	163.57	134.25
Multitasking	1:03	0:51	1:08

*Tangent 450E was reviewed in comparison of 50-MHz 486 PCs on June 29, page 58.

Higher numbers indicate better performance.

Lower numbers indicate better performance.

Any Rock Star Missing From This Event Had Other Plans.



LAS VEGAS, NV (MGX)—Anybody not playing "the event" of COMDEX 1992 obviously had plans they couldn't change. Because this concert will be remembered as the year that Hollywood and Silicon Valley converged in a spectacular fusion of entertainment and technology. Presented by Micrografx and produced by the Walt

Tucker Group, the Grand Scientific Musical Theater combines great performers with the future of modern production.

This event sets the standard for multimedia entertainment. Best of all, the proceeds will go to the National Center For Missing & Exploited Children (NCMEC).

Recent additions to the cast include Alan Parsons, creator of the Alan Parsons Project and engineer of Pink Floyd's *The Dark Side of the Moon*, and John Entwistle of The Who. With JBL building a custom system, combined with 3D Virtual Audio, it'll sound like nothing you've ever heard before! On top of that, add a house band with members of Steely Dan, Pink Floyd, Tower of Power and the Traveling Wilburys. Then sprinkle in an assortment of headline performers. (You have to show up to find out who. But you won't be disappointed.) And for good measure, throw in leaders of technology such as IBM, Silicon Graphics and Pacific Data Images (PDI) to create the visual experience. If that doesn't sound like a recipe for audio and video nirvana, then nothing will!

To make sure you don't miss out on this incredible extravaganza, get your tickets as soon as possible. For advance tickets, call (703) 516-6158. Or come by booth

#7062 at the Las Vegas Convention Center during COMDEX. If

you don't get them there, you might be able to buy them the night of the event. But don't count on it. Because with a line-up like this one and a price of only \$50, tickets will be mighty scarce. Remember, almost anyone could be performing. Well, except the guy with the sideburns. He was busy.





Buyers Advisory / Brett Glass

An enhanced DOS shell is the key to restoring your directories

Q Is there a way that I can capture DOS' current drive and directory to environment variables, so that I can restore them after a batch file has run?

Terry O'Neill

A I know of three solutions to this common problem. The first is to use an enhanced DOS shell, such as J.P. Software's 4DOS. 4DOS' Set Local command changes the current directory, but only for the duration of the current batch file. When the batch ends, the system "pops" back to the old directory. The current drive and directory are also

available as predefined environment variables. 4DOS is shareware; it's available as the file 4DOS4P.ZIP in Data Library 10 of CompuServe's PCVENB Forum. (By the way, if you own a copy of The Norton Utilities, you already have an older but serviceable version of 4DOS. It's called NDOS, and it's written to your hard disk—but not activated—

when you install the utilities.)

If you are wary of replacing your DOS shell, two other solutions might fill the bill. The first is a shareware program called DPATM, available in Data Library 1 of CompuServe's IBMVSYS Forum as DPATM.ARC. The second is a set of utilities called Back and Dback, which were printed in the Star-Dot-Star column of the December 1991 issue of *PC World*. (They're also among the 50 utilities on the PowerBase Star-Dot-Star Volume IV disk; you get the disk for free when you subscribe.) The latter utilities are a little more flexible; they're designed to let you save and restore the current directories on multiple drives.

Q A psychotic machine has been calling me every 10 minutes or so starting at 8:20 this morning. It produces a 2-second tone every 10 seconds, then hangs up after about a minute. I don't know if the calls are malicious or accidental. What should I do?

Russell Brand

A You're probably being called by a fax machine or a computer with a fax board. The tone you're hearing is a CNG ("calling") tone, which tells an answering fax machine that a fax call has arrived. If you hear a fax tone on your voice line, there are several tactics to try.

The first is simply to yell—loudly—into the receiver. Some fax equipment can detect a voice and signal an error; your voice may be audible through the machine's speaker. You may be able to attract someone's attention.

A second technique is to make a shrill whistle (or create a high-pitched tone by pushing the "3" and "9" buttons simultaneously on a Touch-Tone phone). This may cause the fax's modem to register an error that stops redialing.

Third, you can attach a fax machine or a computer with a fax board to the line. Usually the caller's number will be included in the transmission (either on the cover page or as part of the calling machine's digital "signature"); you can call or fax back and ask the sender to stop.

If all else fails, ask your local phone company to attach a device called a pen register to your line. This works much like Caller ID; if you log the times when the calls come in, the phone company can identify the caller. Prepare to argue persuasively and ask for a supervisor if your initial request is refused. Most phone companies will not monitor your line unless they are convinced that the matter is urgent. Misdirected fax calls are becoming increasingly common. Some countries, such as Switzerland, have passed strict laws regulating the frequency and number of redial attempts. (The FCC has a weaker regulation, which has only been enforced for stand-alone fax machines.) If you own a fax board, you can avoid giving other people headaches by limiting the number of redial attempts and/or selecting a board that detects a human voice.

Contributing editor Brett Glass answers reader questions on technical issues in this weekly column. Brett cannot answer questions personally. Readers can leave questions by calling (800) 227-8365, Ext. 702 or by messaging CompuServe (72267,3673).

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October 19, 1992



TO: Modem Users
FR: Multi-Tech Systems
RE: Hayes' Renewed Campaign Against TIES Modems

As you may know from our August open letter to you, Multi-Tech believes that Hayes' Tick, Tick, Tick, Boom! ad campaign is false and misleading. The U.S. District Court of Minnesota agreed, and at our request, issued a preliminary injunction against Hayes' ad on September 15, 1992.

You may recall that the Hayes ad pictured a time bomb which they warned "may be lurking inside your modem." The ad offered you a free "test kit" to help you "uncover the bomb". The issue in the ad is modem escape sequences, and the bomb Hayes was referring to is the supposed accidental escapes that they claimed would happen when using TIES modems, like ours.

U.S. District Court Judge David S. Doty enjoined Hayes' Tick, Tick, Tick, Boom! ad and the test kit offered in the ad, until trial. Judge Doty also ordered Hayes to stop disseminating any information that states or implies that the test kit is a data file that may occur in a user's data. In other words, Judge Doty vindicated Multi-Tech's position that Hayes' ad campaign is false and misleading. He specifically found that Hayes had no substantiation for its statements that TIES modems will suffer frequent accidental escapes.

Despite this Court Order, Hayes has continued its campaign against TIES. Hayes has mailed out its escape sequence White Paper as well as a "TIES Identification Disk" to those people who had requested a test kit. This disk contains the same files as Hayes' original "Modem Escape Reliability Test Files." In other words, these files will make our TIES modem escape "on purpose". Hayes is also running a new ad showing Manhattan turned upside down due to these mythical transmission problems. We believe these "new" materials are also false and misleading -- they basically repeat Hayes' original, unsubstantiated message that TIES modems are unreliable.

Hayes has added a new twist to their campaign to convince you that TIES is unreliable. The TIES Identification Disk contains a scanning program designed to locate our escape sequence in your files and to thereby convince you that our modems present a problem. What Hayes doesn't tell you is that you are guaranteed to find at least two occurrences of our escape sequence if you load their TIES Identification Disk files on your hard drive.

Our TIES modems are reliable. Like all of our products, they are thoroughly tested. We are not aware of any accidental escape problems with our modems. That is why Hayes' continued ad campaign concerns us.

We believe this escape sequence issue is a non-issue, but we do not want you to be misled by Hayes. Therefore, we have prepared a White Paper of our own, that we would be happy to send you if you call us toll-free at 800/328-9717. This paper discusses modem escape sequences, TIES and otherwise, and attempts to put all these issues in their proper perspective. The paper also discusses communications standards, compatibility, and other topics of interest.

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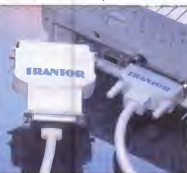


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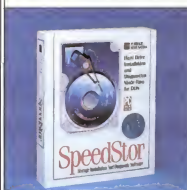


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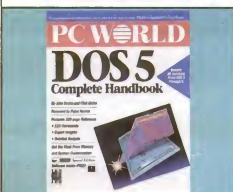
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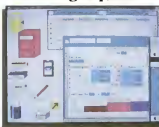
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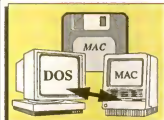
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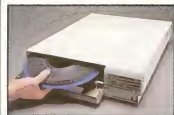
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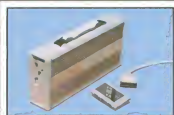
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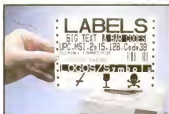
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LOTUS / from page 1

Lotus to bridge E-mail gap

Independent Messaging (VIM), a cross-platform messaging protocol that is supported by IBM, Novell Inc., Apple Computer Inc., Borland International Inc., and WordPerfect Corp. Microsoft's Messaging Applications Programming Interface (MAPI) protocol is exclusively for the Windows environment. (See related story, page 68.)

Rather than conform to VIM, Microsoft is waiting for the X.400 Application Program Interface Association (XAPI) to announce standard E-mail calls at the conference. (See "Compromise reached on VIM, MAPI," October 19, page 8.)

Lotus' VIM/MAPI bridge will be a Dynamic Link Library that allows VIM mail-enabled applications to exchange mes-

sages with Windows applications supporting only MAPI. Lotus hopes the announcement will lead vendors to develop for VIM instead of MAPI, a move Microsoft would like to prevent.

"I don't understand why VIM is interesting to anyone now," said Daniel Petre, vice president of Microsoft's workgroup division. "If I'm a platform-specific developer, I write to MAPI or OCE. And if I want cross-platform, why shouldn't I use the cross-platform APIs that use the standards committee is defining?"

The VIM bridge to MAPI will be available free of charge after Microsoft publishes the extended MAPI specification, currently in draft form, the Lotus documents said.

PRICE CUTS / from page 1

New round ignited by ValuePoint

game," said Ross Cooley, Compaq's vice president of marketing for North America.

"If our users evaluate their [IBM's] systems and signal to us we should be more aggressive, then you best believe we are going to be there," Cooley added. IBM will not only remain price competitive with ValuePoint, it intends to aggressively churn out new versions in short order.

With development cycles cut to six months, sources said IBM's next series of announcements are already slated for next March.

The companies affected most by this sort of quick and aggressive price-cutting on the part of IBM and Compaq are the second- and third-tier manufacturers, some observers believe.

Although smaller companies have little room to cut prices further, IBM and Compaq have not limbed nearly as low as they can go on price, as observers expect to see their prices drop again when smaller competitors react to their latest price slings.

"It's pretty simple. Pricing is going to keep falling until companies start going out of business," said Bill Bluestein, a senior analyst with Forrester Research Inc., in Cambridge, Mass. Open Database Connectivity (ODBC) data access technology, the expected price cuts by the IBMs and Compaqs at the short

term will directly affect each other. They note that many IS buying-approval lists give micro managers a choice between only IBM or Compaq and maybe Apple.

IBM's new line starts with a 25-MHz 386SLC-based system priced at \$1,299 and includes a 25-MHz 486SX-based system priced at \$1,699. A 33-MHz 486DX-based system lists for \$1,999, but pricing for the 33/66-MHz 486DX2 has not been set.

Breaking new ground, IBM released the new systems without a suggested retail price and is selling them through an 800 number.

The new line, available in 36 different configurations, comes with a one-year, on-site warranty and around-the-clock support.

One key to IBM's future price competitiveness is making intelligent purchasing decisions for low-cost components overseas.

IBM's Corrigan admits that IBM is not as smarter about that aspect of its business than it has been in the past.

"You can be the world's most efficient manufacturer, but if you aren't procuring parts efficiently, you just aren't going to be the cheapest," Corrigan said.

—Shawn Willett contributed to this story.

WFW / from page 1

Excitement won't match lavish debut

in Bala Cynwyd, Penn. "The LAN market has always been a disaster for Microsoft," she said, "and so they've decided to re-define the platform and then declared themselves the winner."

Potential buyers believe they



Maloney: 'It may get a lukewarm reception... but after a year or two WFW will become a monster standard.'

can't ignore WFW, but they seem puzzled by the WFW concept. For example, of 70 attendees at a meeting of the Corporate Association for Microcomputer Professionals (CAMP) in Chicago last week, only two had begun the process of evaluating WFW, said Julian Horwich, the group's executive director. About 30 attendees, however, said they plan to take a look at the software. "It's still too early," Horwich said.

Microsoft officials played down the skepticism, saying that WFW will win out except in "extreme cases" where other LAN operating systems and E-Mail are already well entrenched.

Microsoft officials also said that familiarity will breed acceptance of WFW, pointing to the seven years Microsoft persevered with Windows before sales exploded in 1990.

Basil Maloney, president of Winalysis, a Sunnyvale, Calif., consulting firm, agrees. "I think

it may get a lukewarm reception at first and go through a couple of revisions pretty quickly. And then, after a year or two, it will become a monster standard."

In classic Microsoft hard-sell style, the company is expected to announce a raft of orders for WFW at the rollout, as well as to trot out 10 or more hardware vendors that will bundle it with their systems and at least 20 software companies whose products will support it.

Taking the same tack Apple Computer Inc. has used to get into businesses, Microsoft officials predict that WFW will be initially adopted by the workers instead of IS managers.

"We're making networking so simple it will be implemented from the grass roots," said Brad Silverberg, Microsoft's vice president of personal systems.

For users, WFW will be good even if it doesn't succeed, users and analysts said. The competition will spur companies such as Novell and Lotus to improve their workgroup products.

—Vance McCarthy and Shawn Willett contributed to this report.

WFW competitors are undaunted

BY CHERYL GERBER AND KAREN RODRIGUEZ

With Windows for Workgroups (WFW), Microsoft Corp. is waging a battle against peer-to-peer and groupware vendors, analysts said last week. But as WFW prepares to ship, leading adversaries appear unfazed.

IBM's OS/2 group is planning its own peer-to-peer message for Comdex next month, where it will highlight the peer-to-peer and client/server features in OS/2 bundled with LAN Server 3.0. "There's a market frenzy over peer-to-peer now, but our existing technologies are prepared to meet those needs much better than Windows for Workgroups," said Joe Demassa, manager of LAN Systems marketing at IBM. "We're just working out the packaging issues."

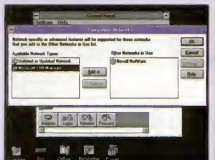
IBM is considering extending OS/2 to include file and print services, mail, and database access, Demassa said.

Artisoft Inc., the leader in peer-to-peer networking with its LANtastic, is undaunted.

Artisoft president Jack Shoof said his chief difference is a 27,000-member value-added reseller channel, which has successfully kept Novell's NetWare Live from making any serious inroads. "Microsoft has no idea how to support hardware aspects such as hubs and cables," he said.

Shoof also said LANtastic is positioned well against WFW. "Artisoft has built a fully compatible Windows package that provides users with what they want: something that works in DOS and Windows," he said.

At WordPerfect — which supports DOS,



Microsoft adversaries claim WFW falls short of existing peer-to-peer, groupware options.

Windows, Mac, and Unix platforms — cross-platform also is the sticking point for Microsoft.

"We have a definite strength because we go across multiple platforms and across gateways," said Dave Clare, WordPerfect president.

At Lotus, confidence is also high. "If it competes against cc:Mail, then we beat the mail that's in WFW. The mail in WFW is just a pretty face," said Cliff Connetton, Lotus director of marketing communications products.

And what about WFW against Notes? "Absurd," he said. "Notes is a development environment for a class of applications that you can't build with Microsoft products."

—Vance McCarthy contributed to this story.

ACCESS / from page 1

Access to bridge price at huge discount

pricing techniques before, most notably when it released Excel for Windows and offered the spreadsheet at prices as low as \$75 to Lotus 1-2-3 users.

Unlike previous upgrades, however, the Access pro-

motional price will be offered to all users.

Access, a Windows relational database that ties to a variety of data bases using Microsoft's Open Database Connectivity (ODBC) data access technology,

will be announced at Comdex next month, in Las Vegas, and will ship on or near the announcement.

Microsoft's new database is expected to ship before the Windows version of Borland's Paradox, currently in beta, whose ship date may slip into next year.

Access is also positioned as a

central component of Microsoft's workgroup strategy and is supposed to allow enterprise-wide data access.

In a decision sure to surprise many observers, Microsoft will not bundle the Access database with Microsoft Office, its \$750 bundle of applications that includes Excel, Word, PowerPoint, and Micro-

soft Mail.

Many had expected Microsoft to include Access to lure customers away from Lotus' Smart Suite, which also does not include a database.

However, Access does give Microsoft a full roster of productive applications, and the firm may bundle Access with Office in the future.

REVIEWS / TEST DRIVES

First Look / Kevin Strehlo

Hyundai 433S performs well, but doesn't live up to the hype

When I read the specs of the Hyundai 433S, I was impressed. And I used the machine and liked it. But after running tests, it was clear that the press release and marketing pitch were trying to dupe us again.

The press release claimed 18 million instructions per second (MIPS) vs. 9 MIPS for competitively priced 486 machines, attributed largely to the Hyundai's 128K of Level 2 write-back cache. It also promised Winmark performance of 32 million pixels per second vs. one million pixels per second for 16-bit ISA video and 32-bit VESA local bus video and something called a Rendering Accelerated Graphics Engine (RAGE).



A FINE VALUE. The Hyundai 433S is a nice machine in a number of ways, even if it's not a screamer. It has seven slots, all open because video, ports, and drive controllers are implemented on the motherboard. A total of seven drive bays (five external) is ample for almost any application.

Given what you get — 4 megabytes of memory, a 120-megabyte hard drive, 14-inch display, DOS 5.0, and Windows 3.1 — the \$1,999 list price is impressive. It compares with \$2,115 and \$2,099 for comparable 486SX 33-MHz machines from Gateway and Dell — and the Hyundai is cheaper on the street, too, while the Gateway and Dell are mostly sold direct at the full quoted price.

Although it turns out there really isn't a RAGE component to the video, the 433S shines in video performance. The local bus video card in the machine is the ATI Technologies VLB mach32, which supports resolutions up to 1,024 by 768 pixels in 65,000 colors noninterlaced. And it is a very fast card.

We got a feeling for the video performance by running SYSMark92 on the machine twice: once with the standard AT1 local bus video card, a second time with the Orchid Fahrenheit 1280 card that came in second in our May 18th comparison of S3 video cards (page 62). Switching to the local bus card lessened the amount of time it took to perform the desktop publishing segment of the SYSMark92 suite by 22 percent.

Though very impressive, 22 percent is less of an improvement than implied by the 32,000 percent video performance improvement quoted in the press release.

One problem with using SYSMark92 to gauge the impact of video on overall performance is that SYSMark92 can run only Windows 3.0 (not 3.1 with its improved video performance) and only in standard 640 by 480 VGA mode. Would the machine have done even better under 3.1 at higher resolutions?

No. I confirmed the BAPCO results using an alpha version of the promising Windows Integrated Test Suite (WITS) from Jon Peddie Associates, which times video-intensive tasks performed in Word for Windows, Excel, Photoshoper, CorelDraw, and QuarkXPress. WITS uses Windows 3.1 and is resolution independent; more about WITS when it gets closer to shipping.

A SCREAMER. NOT. The Hyundai is a fine machine. I'd love to have one on my desk, particularly for the snappy video. According to the alpha version of WITS, the 433S outperforms my 25-MHz 386DX and its 16-bit VGA card in video-intensive Windows tasks by about 300 percent. The workmanship is fine, and clearly the Hyundai people can get the latest and greatest technology to market quickly (the 33-MHz 486SX just recently began shipping).

But a screamer? Only when you compare it with the machines of yesteryear.

Hyundai sells through various resellers as well as direct. The 24-hour sales number is (800) 933-3445.

Kevin Strehlo is Executive Editor, Testing & Reviews. First Look examines new products before they have been through a formal review.

WINDOWS UTILITY

Squeezee eases Windows program, file launching

Offers file management shortcuts

BY BRYAN HASTINGS
REVIEW BOARD

The first test I put Icom Simulations Inc.'s Squeezee to was writing this article. I found that Squeezee made the job of starting a Windows application easier, so much so that I've switched from my old trusty DOS word processor to the Windows version.

Squeezee simplifies and enriches program launching. If you have many executable files in a directory but don't want to create an icon for each one, Squeezee eases access by presenting all the programs in that subdirectory via a pick list.

You can also associate many applications with a single file type. For example, a double-click on a file name with a TXT extension can result in a pop-up pick list of the applications you've associated with that file type: for example, Notepad, Brief, WordPerfect, AmiPro, and Word for Windows. A second click on the appropriate editing tool then launches you into an edit of the file.

Squeezee's menu system streamlines file management, bypassing the usual clicking on and minimizing icons. You only click on Squeezee's menu icon, which is located in the active window's title bar. A single click pulls down the menu, and you move the pointer through the menu while depressing the mouse button.

As you navigate through the menu, submenus pop up. For example, the Task menu item displays the list of all active tasks when the pointer passes

over it. From there, you can move to any submenu item. Releasing the mouse button activates the highlighted menu or submenu item.

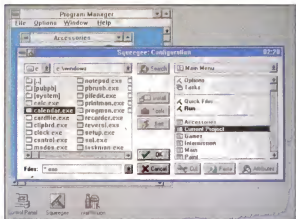
I also liked working with Squeezee's file manager. Quick Filer lists two directories side by side, with command buttons placed between them that allow you to run, delete, and rename selected files, as well as move or copy selected files between the directories. I found it much easier to perform simple functions, such as copying or renaming files, in Quick Filer than in Windows' File Manager.

To copy a file in File Manager, you have to press the Ctrl key before dragging the selected file from the directory list to an icon on the directory tree. If you forget to depress Ctrl, you move the file instead of copying it. In Quick Filer, however, you only select the file and click on the Copy button.

The Search feature in Quick Filer is rather helpful, allowing you to search for words within text files.

The more I worked with Squeezee, the more shortcuts I discovered in Windows' file management process. The only feature I wish Squeezee included was the capability to save and close multiple applications and files in a single mouse click. Nonetheless, for \$79.95 and less than 100K of hard disk space, Squeezee lets you see Windows file management in a much brighter light.

Icom Simulations, based in Wheeling, Ill., can be reached at (708) 520-4440.



Squeezee lets multiple Windows files and their associated files launch at once, bypassing the usual mouse clicking.



After running tests, it was clear that the press release and marketing pitch were trying to dupe us again.

The only reason to doubt that the machine was the "screamer" the marketing people claimed was their use of such soft benchmarks. The MIPS benchmark has a long and convoluted history, and it's quite possible to quote several MIPS figures for the same hardware. The Winmark essentially measures how fast a dialog box can be popped up on a Windows screen, which has considerable impact on the impression you get of the speed of a machine's video but not much relevance to overall performance.

So I figured the box would get maybe 486DX 33-MHz performance out of a 33-MHz 486SX chip, but not more.

Was I surprised when the machine pulled a 78.39 on the BAPCO's SYSMark92, more than 20 percent slower than the baseline 100 scored by a vanilla 33-MHz 486DX box built by Intel? You bet I was.

It just goes to show you that when it comes to a vendor's performance claims, beware.

IMAGE EDITOR

Truth in advertising: DoDot is a complete toolbox

Windows utility suite captures, shows, and manages a wide variety of graphics formats

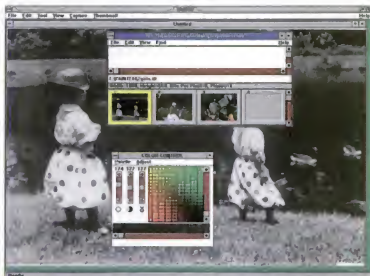
BY PATRICK MARSHALL
CONTRIBUTING EDITOR

Halcyon Software advertises DoDot as the complete Windows graphics toolbox. The fact is, it's pretty darn close to being right.

DoDot can handle a broad range of file formats, including not only most of the major raster formats — TIF, PCX, BMP, GIF, and EPS — but also a healthy selection of vector formats. Among the vector formats, Micrografx formats are well represented, in addition to AutoCAD DXF files, Lotus PIC files, and eight others. The program also supports the major fax formats and even provides a utility for you to send faxes directly from DoDot.

You can crop, rotate, flip, and rescale images. DoDot also provides the means to change color images to gray-scale images and to convert images to black and white, 16 colors, 256 colors, and 24-bit color. There are three different dithering algorithms you can use. And there is even a nifty tracing utility you can use to create vector outlines of bit-mapped images.

But that's not all. DoDot also lets you adjust an image's brightness, contrast, gamma, and color balance through its own Control Window. Finally, you can even use DoDot to produce either RGB



DoThumbail is a handy file manager that lets you generate palettes of images — even from different directories. To see an image full screen, just hit return.

or CMYK color separations.

The program also comes with a few other major modules: DoSnap, DoView, DoThumbail, and DoConvert. DoSnap is a handy screen-capture program; DoView, which also works from File Man-

ager, lets you view up to 50 different file formats.

DoThumbail is a very useful image-file manager that lets you generate palettes of thumbnail images of graphic files. You can include images from dif-

ferent directories, and all it takes to view an image is to hit return to send it to the Windows clipboard or, if it's running, the DoDot viewer.

Finally, DoConvert allows you to convert files among the 30-plus supported formats.

The biggest weakness of DoDot is that, just like with a real toolbox, it seems like you always have to go back for another tool. If you've already loaded DoConvert and DoThumbail, these utilities will appear as options on DoDot's main menu. Otherwise, you have to go to the File menu, select Run and then load the application.

Similarly, if you launch an image from DoThumbail and DoDot isn't already running, the image is sent to the Windows clipboard, where there are no tools at all to work with. Why not just integrate the applications all into the same interface?

Another weakness is that DoDot cannot handle the increasingly popular JPEG compressed file format. And we had problems with DoDot locking up our system when running in 24-bit mode.

These caveats aside, DoDot offers a very powerful set of image utilities at a very reasonable list price of \$189.

Halcyon Software, in Campbell, Calif., can be reached at (408) 378-9898; fax: (408) 378-9935.

KEYBOARD

Trak101 for Windows boasts customizability

BY JEFF ANGUS REVIEW BOARD

Windows is like the Olympics: Anything that can be tied for first will win. So when Key Tronic Corp. said it had a new keyboard for Windows, I was properly skeptical. The Trak101 includes a built-in trackball and a lot of buttons with rodent icons on them.

The Trak101 not only cleans up your desk a little, it makes fast work of Windows and is the most customizable input device available.

Trak101's trackball has the two traditional mouse buttons above it and includes a pair of smaller buttons below it for advanced features. The button on the lower right is a clever "drag lock" key, which alleviates the problem of your finger slipping off during select-and-drag operations. The other button speeds up your cursor for long, cross-screen moves.

In addition, you can control the trackball buttons in three ways. First, there's the one-handed, palm-on-the-fingers-on-the-trackball buttons approach. You can also use one hand with your palm on the trackball and your fingers on the numeric keypad buttons, which can act as surrogate mouse buttons. This works well for people with large hands or who work better with fingers played.

My favorite is the two-handed approach. You use the trackball with your right palm or fingers, and the left hand and Alt keys as mouse buttons with your left hand, could really blaze this way.

The downside: The \$224 price is a real eyebrow raiser. However, Trak101 will improve user productivity and health more than any piece of hardware I've seen. Key Tronic, based in Spokane, Wash., can be reached at (800) 262-6006.

DOS UTILITY

Battery Boost adds little life, is hardly practical for most modern PC users

BY BRYAN HASTINGS REVIEW BOARD

Why lug around a bigger battery when you can use software to eke more life out of your old one? That's the question Lucid tried to answer when it set out to develop a set of easy-to-use utilities for portable PCs hampered by short battery life.

Collectively called Battery Boost, these utilities include Power Manager, which shuts down the screen and hard drive during lulls in use; a cache to minimize hard disk access; and Deep Discharge, which prevents your nickel-cadmium batteries from losing capacity from premature recharging. Lucid also included Battery Gauge, so you can keep an eye on your battery's remaining charge.

In my experience, Lucid fell far short of its goal. The company's overwhelming phone support was the first disappointment. Bigger letdowns ensued once I got these RAM-resident utilities running. The utilities require a lot of user intervention and patience, and they don't mesh smoothly with Windows. Battery Boost's pop-up menus, for example, can't pop up over the Windows graphical environment. Power Manager shuts off each time you load Windows, and you must reactivate it using Battery Boost's Power Manager for Windows interface. Deep Discharge, which is just a software switch that spins your floppy drive continually until your battery dies, puts undue stress on the drive and makes you wait until it's done before you can recharge the battery.

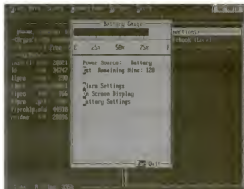
For all practical purposes, Battery Gauge and hard disk power management don't work together, because the gauge needs to save to disk every minute. Battery

Gauge is also highly inaccurate.

Battery Boost offers little for most late-model 386- and 486-based portables that come loaded with Windows. My Compaq, for example, gets as much battery life with SmartDrive and its own power management capabilities as it does from Battery Boost.

The only users who are likely to benefit from Battery Boost are those who run just DOS text-based applications on older portables that have little or no power management.

Battery Boost has a list price of \$79.95. Lucid is located in Dallas and can be reached at (214) 994-8100.



Battery Gauge factors in battery shelf life and re-charge time, but you have to supply the information.

Aldus founder Brainerd refocuses company's strategy

Mention PageMaker these days and desktop publishers will rattle off a litany of issues they have with Aldus. Principally, that the company seems to be letting its lead over QuarkXPress erode as it finishes much-needed updates (PageMaker 5 is expected for Windows in January; for the Mac in February). Indeed, Quark has taken its toll on Aldus, which with profits falling had to lay off workers earlier this year.

These challenges have brought founder Paul Brainerd back into the picture. He is setting strategy, tone, and priorities for the company. Last week, Aldus reported a \$1 million profit for its third quarter, thanks in large part to foreign sales. Recently, InfoWorld's desktop publishing specialist Jeannette Borzo asked Brainerd about Aldus' future and his role.

InfoWorld: Aldus has had four bad quarters in a row. How are current sales and profits looking?

Brainerd: I cannot predict what our results will be as a public company. But we have a new, clearly focused strategy and understanding of who our customers are and a commitment to understanding their needs. So I think we can do well.

InfoWorld: How are you defining your customers?

Brainerd: I believe our customers are in three areas: The first is in professional graphics, the second is in consumer products, and the third is in our service and support areas—the service bureaus and individuals who come to our technical seminars and training courses. In each of the three areas, we have developed specific plans for going forward.

Service is critical to our business, and there is a strategy around service so it will give us a competitive advantage. We don't just want to give our customers dependable good support, we want to improve it and be able to offer specialized support. For example, we sent a service rep to Agfa [Corp.] and they sent one to us for cross-training. This is where we are way out in front of our competitors.

InfoWorld: How important is the consumer aspect? What is Silicon Beach contributing to the bottom line?

Brainerd: The Aldus consumer division is focused on the emerging consumer products market. There is a great opportunity for those companies that understand the consumer customer's needs. Consumer products are going to be different from the professional graphics products, for example. We may use some of the same technology, but the features will be very different in terms of the needs.

There are also a whole bunch of new hardware platforms, the PDAs from Apple and the PC-to-TV interface from Radio Shack, for example. We are evaluating those platforms and others that are not necessarily desktop computers.

InfoWorld: You are emphasizing this issue of focus on the customer. Do you feel that it is something you strayed from in the past or did not have clearly defined?

Brainerd: Let's just say that I have refocused the company and have a lot more clarity about who those customers are. I am at work throughout the entire company to make sure that everyone understands that strategy and that we are



all pulling the oars in the same direction.

The market forced us to refocus this way. In 1985 and 1986, people were more than content with PageMaker, and the limitations of the hardware and software did not allow people to do more than produce newsletters, brochures, and fliers. Today that is entirely different. So our strategies need to evolve to match the changes taking place with our customer.

InfoWorld: What is Aldus today, a desk-

top publishing company?

Brainerd: We have gone beyond desktop publishing and are really a communications software business. Desktop publishing was the first generation of products that allowed you to use the PC for a tool rather than just a numeric calculator. It became a communications tool.

I also get very excited about the future. No one agrees when, but there is another revolution coming: we will be going to more and more electronic communication. Looking out three to five years in the future, we have our advanced development group working on products in the electronic communications arena.

InfoWorld: What kind of company will Aldus be three to five years from now?

Brainerd: I don't think anyone can predict that. Obviously, print is not going away. Print will be very important for a long, long time to come. We are also seeing electronic distribution and mediums. Aldus is well positioned to take advantage of that. What this means is that we have a lot of opportunities for growth going forward.

InfoWorld: How would you describe your role at Aldus? Has it changed at all?

Brainerd: Over the last 12 months, I've re-evaluated and am much more involved in making decisions and moving the company forward. My role is largely one of providing leadership and focus for the company, being the spokesman to the user community, financial world, and the industry. And I represent the Aldus culture—what we stand for as a company.

Notes From the Field / Robert X. Cringely

Microsoft strikes out on Novell takeover, left with Bush-league nets

I'm trying to write about baseball, but other stuff keeps getting in the way. The idea is to write one of those descriptive sports pieces that conveys the beauty of the World Series, yet doesn't take any cheap shots like pointing out that President Bush has kicked his reelection campaign to the Atlanta Braves. None of that stuff, because it always annoys some reader/AK-47 owner who then calls to talk about the end of life as I have come to know it.

But I can't do any of that stuff because Candy Maldonado is going to the plate in Game Five (I'm writing on Thursday night) and he's the best Puerto Rican ballplayer from Canada and a heck of a lot better than the Puerto Rican ballplayers in Georgia.

I EARN, THEREFORE I AM. Why do we get so excited about these games, when they are played by professionals who often don't even live in the cities they represent? Pammy, the student of pop psychology, says it's tribal, that since the dawn of time all we've really cared about is us vs. them, no matter who they played for last season. Which could both explain how Novell could agree to be bought by Microsoft and how the deal fell through at the last



moment about three months ago. The merger fell apart when Novell's Ray Noorda changed his mind at the last minute, preferring to remain a free agent. Pammy says it's tribal, but I say Ray decided he wasn't getting enough money.

Microsoft is such a small player in the networking business that the deal probably hasn't made it past the Feds, despite the FTC investigation of Microsoft. I've heard, by the way, that that investigation may be expanded to include Egghead Software, which allegedly refused to carry some Windows titles to

please Microsoft.

Paul Allen, cofounder of Microsoft, turns out to be a megashareholder in both organizations.

FREEDIES. "What do we care about Toronto and Atlanta? I asked Pammy if I grabbed the remote control. "Let's see what else is on."

"Don't touch that remote!" said Pammy in a surprisingly ferocious voice. Pammy has a thing for Candy.

And I have a thing for free stuff. If you're a 501(c)3 nonprofit, call Donna Fuller at Novell (408) 434-2300 and badger her mercilessly until she sends you a free copy of NetWare 3.11. No authorized dealer involvement is required for this one, which of course bothers the heck out of the NetWare G.D. reseller who told me about it.

Or just about anybody can call (800) IBM-3040 for a beta of OS/2 2.1 that comes on 29" high-density floppies. For the CD ROM, call (800) 3IBM-OS2.

A good deal that will soon be no more is the Borland (formerly Ashton-Tate) dBase support DBS, which is shutting down as of November 14. Borland is pushing users toward its CompuServe forum, which isn't nearly as good.

STICK TO SOFTWARE, STEVE. Game Five is still playing as I write this, but I'm pretty sure Toronto will take the series. I'm not at all sure that Dell will take Gateway 2000, though the two companies are reportedly negotiating such a merger/acquisition.

A company that I thought had struck out long ago is Next Inc., which just beat the dickens out of Sun Microsystems for a big contract with Fanny Mae, the federal mortgage munchers. Scott McNealy made a personal (and terrifically unsuccessful) appeal for Solaris 2.0, which lost to NextStep 486.

Oh, two more things: Laser Printer Accessories is at (619) 485-8411; and the largest wooden roller coaster is not the Texas Giant, in Dallas. The Giant is number three after the Rattler at Fiesta Park in San Antonio and the Mean Streak at Cedar Point (Ohio).

"Now you can change the channel," said Pammy, as Candy fled out.

Enjoy America's favorite sport—call me with an industry secret at (415) 312-0555; fax: (415) 326-0326; car: (415) 699-5085; MCI:CRINGE; or cringex@infoworld.com.

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